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भारत हेवी इलेक्ट्रिकल्स लिमिटेड

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Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division

CE: PR: 003- Rev 02

PB 2606 , Mysore Road Bangalore , 560026 INDIA

SPECIAL COMMERCIAL CONDITIONS OF CONTRACT

Reference is brought to BHEL's Instructions to Bidders (Document Ref: CE: PR: 001- Rev 05) and General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 03).

These two documents along with Special Conditions of Contract annexed to this RFQ will form an integral part of the contract as and when the RFQ culminates into a Purchase Order / Contract.

RFQ No. : ATLNIC0009
RFQ Date : As per E-procurement website
RFQ Due Date : As per E-procurement website
Customer/Project : **TANGEDCO / 2x660 MW ENNORE SEZ**
Scope Description : **Electrical Lab Items**

Kindly submit your quotation as **two part bid** (Pre-Qualification Criteria & Techno-Commercial bid-1st part & Price bid-2nd Part) in E-Procurement System portal: <https://eprocurebhel.co.in> within the Due- Date of ____ As per E-procurement website ____ before ____ As per E-procurement website ____ hours IST and note that tenders will be opened on the same day at ____ As per E-procurement website ____ hours IST.

Purchase Executives: Clarifications with regard to the tender shall be addressed to purchase officers whose e-mail IDs are given below:

atulsood@bhel.in or sathishkumars@bhel.in

Splitting of tendered quantity to MSE vendors for Purchase preference: Non-Splittable

Destination: For Indigenous scope of supply, items are to be directly despatched to BHEL site office/stores located at ____ **VAYALUR BRPO, MINJUR PO (PIN 601203)** in ____ **Tamil Nadu** ____ state respectively, India. Detailed Consignee details will be issued by BHEL along with Despatch Clearance.

Terms of Delivery:

- **Indigenous scope of supply:** Ex-works, ____ <indicate station of dispatch> ____ (including Packing & Forwarding charges but excluding Taxes).

Under-mentioned details shall be provided against indigenous supplies & services:

- a. GSTIN of place of supply : _____
- b. HSN (Harmonized System of Nomenclature) code : _____
Applicable tax and Rate : _____ & _____
- c. GSTIN of place of supply of service : _____
- d. SAC (Service Accounting Code) : _____
Applicable tax and Rate : _____ & _____

e. GeM Seller ID mandatorily required for PO placement: _____

f. MSE vendor : Yes-MSE supporting documents enclosed/No
(If MSE, supporting documents such as Udyam certificate to be enclosed)

I. Bidders to mandatorily provide confirmation/compliance for the under-mentioned terms:

SL NO	TERMS	BHEL ACCEPTABLE TERM	BIDDER'S CONFIRMATION	REMARKS,if any
01	Reverse Auction (RA)	BHEL shall be resorting to Reverse Auction (Guidelines as available on http://www.bhel.com/index.php/vender) for this tender. RA shall be conducted among all the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.	AGREE	
03	Delivery Period	Within 14 weeks from the date of issue of Manufacturing clearance along with approved document. Delay in contractual delivery will attract Penalty as per GCC Clause no.:04.b. Manufacturing clearance will be provided as per latest site delivery schedule. Present tentative delivery schedule is September 2025	AGREE weeks	
04	Terms of Payment at the time of material supply	Refer Clause "F" of Instructions to Bidder for BHEL standard Payment terms and loading factors applicable for non-compliance against payment terms: <i>"100% of basic PO value with taxes and freight will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation, whichever is later."</i> <u>Note:</u> MSME vendors may opt to get payment through Trade Receivables electronic Discounting System (TReDS)	AGREE	
05	Declaration of local content : The 'Class-I local supplier' shall be required to indicate percentage of local content	'Local content' means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent. { 'Class-I local supplier' means a supplier or service provider, whose goods, services or works offered	Percentage of local content : _____% Details of the Location(s) at which the local	

	and provide certification that the item offered meets the local content requirement for 'Class-I local supplier'.	for procurement, has local content equal to or more than 50%, as defined under Public procurement order no.P-45021/2/2017-PP (BE-II) dt: 16.09.2020 and Revision dt.19-07-2024. In the event of any Nodal Ministry prescribing higher or lower margin of purchase preference and/or higher or lower percentage of local content in respect of this procurement, same shall be applicable}.' (Refer Clause 'A' Sl. No. 12 of Instructions to Bidders). Note: Non Local suppliers are also eligible to participate in the tender	value addition is made : _____	
06	Declaration as a Compliance of Restrictions under Rule 144 (xi) of GFR 2017 as per DOE Order (Public Procurement No.4) dated 23.02.2023 (as amended from time to time)	The below declaration is to be submitted on Company Letter head duly signed and sealed by authorised signatory, for ascertaining the eligibility of offer in the tender. "I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that our firm is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that our firm fulfils all requirements in this regard and is eligible to be considered." (Refer Clause 'A' Sl. No. 13 of Instructions to Bidders).		

II. Bidder to note that Deviations shall not be permitted for the below mentioned terms (1-9) and are deemed to be complied. In case of non-compliance/deviation, offer shall be liable for rejection:

- (1) **Submission of documents post PO viz., drawings /data sheet etc. as indicated in CI: 04 of GCC:** Within 02 weeks from the date of receipt of Purchase Order. Delay in submission of complete set of specified documents in NIT, will attract Penalty as per GCC Clause no.:04.a.
- (2) **Validity:** The offer will be valid for a period of 90 days from the date of part-I bid opening and in case of Negotiation/ Counter-offer/RA, price validity will apply afresh for a period of 60 days from the date of according final price by bidder (or) up to original validity period, whichever is later.
- (3) **Warranty:** 18 months from the date of dispatch of goods or 12 months from date of commissioning, whichever is earlier.
- (4) **Despatch Documents:** Complete set of despatch documents (original + 1 photocopy set) as per Purchase Order shall be forwarded to Purchase Executive/BHEL directly. Depending upon the project/customer demands, Despatch documents may include one (or) more documents from the following:

Invoice (01 original and 01 copy with original sign & seal / digitally signed invoice), Lorry Receipt (L/R), Packing List, NIL Short-Shipment Certificate, Warranty certificate, insurance intimation letter, E-way bill, and original POD (Proof of Delivery) on L/R.

The precise list of despatch documents needed for the project will be specified in the Purchase Order.

One set of Invoice, Packing List, E-way Bill (Part-A,B) Lorry Receipt (or) AWB/BOL shall be e-mailed immediately to BHEL-EDN at the time of despatch.

Note: Detailed Packing List should indicate package-wise content details and also Net & Gross weight of each package.

(5) **Freight Charges (for indigenous scope of supply):** Freight charges shall be to vendor's account. Bidder to quote reasonable Freight charges along with applicable tax, in price bid.

(6) **Evaluation criteria to determine L1 bidder:** Items will not be split on item-wise lowest offer. Evaluation of the lowest bidder will be done as a combined package basis.

(7) **Performance security:** Performance of the contract, Performance Bank Guarantee (PBG) or Security Deposit (SD), hereafter referred as performance security has to be submitted by successful bidder for 05% of the contract value.

PBG has to be furnished within 05 Weeks after notification of the award and it should remain valid for a period of 60 days beyond the date of completion of all contractual obligations, including warranty obligations.

Refer Clause "H" of Instructions to Bidders. Also note that PBG should be in the format specified in Annexure VII of ITB and no deviation to this format will be allowed.

In case of breach of contract (failure of supplier), wherever the value of Performance security available with BHEL against the said contract is at least 10% of the contract value, the same shall be encashed. In case the value of the security instruments available is less than 10% of the contract value, the balance amount shall be recovered from other financial remedies (i.e. available bills of the contractor, retention amount, etc. with BHEL) or legal remedies be pursued.

(8) **Erection Supervision and Commissioning:**

Range of procurement value	Minimum percentage of basic material value proposed for Erection Supervision & Commissioning charges
Up to Rs. 2.50 crs.	05%
Greater than Rs. 2.50 crs. and lesser than Rs. 10 crs.	03% (or) Rs.12.50 lakhs, whichever is higher.
Greater than Rs. 10 crs. and lesser than Rs. 20 crs.	02% (or) Rs.30 lakhs, whichever is higher.
Greater than Rs. 20 crs.	01.50% (or) Rs.40 lakhs, whichever is higher.

Depending on the material quotation value, the bidder will have to quote the corresponding Erection Supervision & Commissioning charges for the respective slab/range as per above table. In case the quoted total Erection Supervision & Commissioning value is less than above stipulated charges, BHEL shall evaluate & order, Bidders Price deducting differential amount from main supply price and apportioning towards Erection Supervision & Commissioning charges.

Refer Sl. no. 'h' under Clause 'F' of Instructions to Bidders for Payment terms of Erection Supervision & Commissioning charges.

Note: Wherever bidders doesn't agree for such apportioning, the differential charges shall be retained

from main supply price and retention amount will be paid after successful completion of Erection & Commissioning.

- (9) **Integrity Pact:** Execution of Integrity Pact is applicable for this tender (Refer clause “K” of Instructions to Bidders). The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those Bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.

With this, we hereby confirm that all the terms & conditions as indicated in Instructions to Bidders (Document Ref: CE: PR: 001- Rev 05) & General Commercial Conditions for Contract (Document Ref: CE: PR: 002- Rev 03) are accepted without any deviation.

Additional note: Offer acceptance of any new packaged vendor is subject to approval from customer.

Vendor's Signature with Seal



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Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE:PR:001- Rev 05

INSTRUCTIONS TO BIDDERS

Bidder is requested to read the instructions carefully and submit their quotation taking into consideration of all the points:

A. GENERAL INSTRUCTIONS:

1. Any Purchase Order resulting from this enquiry shall be governed by the Instructions to Bidders (document reference: CE: PR: 001 – Rev 05), General Conditions of Contract (document reference: CE: PR: 002 - Rev 03) and Special Conditions of Contract, if any, of the enquiry. If any term mentioned in Special Conditions of Contract (SCC) contradicts relevant clause in either Instructions to Bidders (ITB) or General Conditions of Contract (GCC), the term mentioned in SCC will supersede the corresponding term in ITB / GCC.
2. Any deviations from or additions to the “General Conditions of Contract” or “Special Conditions of Contract” require BHEL’s express written consent. The general terms of business or sale of the bidder shall not apply to this tender.
3. Regret letter (either through post or by mail or by EPS) indicating reasons for not quoting must be submitted without fail, in case of non-participation in this tender.

Supplier shall be liable for removal as a registered vendor of BHEL when the supplier fails to quote against four consecutive tender enquiries for the same item or all enquiries in last two years for the same item, whichever is earlier.

4. Procurement directly from the manufacturers is preferred. However, if the OEM/ Principal insist on engaging the services of an agent, such agent shall not be allowed to represent more than one manufacturer/ supplier in the same tender.

Moreover, either the agent could bid on behalf of the manufacturer/ supplier or the manufacturer/ supplier could bid directly but not both. Agent/Representative authorized by the OEM/Principal in turn cannot further sub authorize any other firm for submitting the offer or for placement of order.

In case bids are received from the manufacturer/ supplier and his agent, bid received from the agent shall be ignored.

5. Consultant / firm (and any of its affiliates) shall not be eligible to participate in the tender/s for the related goods for the same project if they were engaged for consultancy services for the same project.
6. If an Indian representative/associate/liaison office quotes on behalf of a foreign based bidder, such representative shall furnish the following documents:
 - a. Authorization letter to quote and negotiate on behalf of such foreign-based bidder.
 - b. Undertaking from such foreign based bidder that such contract will be honored and executed according to agreed scope of supply and commercial terms and conditions.

- c. Undertaking shall be furnished by the Indian representative stating that the co-ordination and smooth execution of the contract and settlement of shortages/damages/replacement/repair of imported scope till the equipment is commissioned and handed over to customer will be the sole responsibility of the Indian representative/associates/agent/liaison office.

- d. Refer **Annexure I** on “Guidelines for Indian Agents”.

- 7. In case of imported scope of supply, customs clearance & customs duty payment will be to BHEL account after the consignment is received at Indian Airport /Seaport. Bidders must provide all original documents required for completing the customs clearance along with the shipment.

Warehousing charges due to incomplete or missing documentation will be to supplier’s account. All offers for imported scope of supply by air, must be made from any of the gateway ports (within the country) indicated **(Refer Annexure II)**.

- 8. The offers of the bidders who are on the banned list and also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of the banned firms is available on BHEL website: http://www.bhel.com/vender_registration/vender.php
- 9. Business dealings with bidders will be suspended if they are found to have indulged in any malpractices/misconduct which are contrary to business ethics like bribery, corruption, fraud, pilferage, cartel formation, submission of fake/false/forged documents, certificates, information to BHEL or if they tamper with tendering procedure affecting the ordering process or fail to execute a contract, or rejection of 3 consecutive supplies or if their firms / works are under strike/lockout for a long period. Bidder may refer “Guidelines for Suspension of Business Dealings with Suppliers/ Contractors” available on www.bhel.com for more details.

The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process. In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies / guidelines.

- 10. The bidder along with its associate/collaborators/sub-contractors/sub-vendors/consultants/service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to your notice.

- 11. Offer is to be submitted in English language only.

- 12. For this procurement, the local content to categorize a supplier as a Class-I local supplier/ Class-II local supplier/ Non-local supplier and purchase preference to Class-I local supplier, is as defined in Public procurement (Preference to Make in India), Order 2017 dated 16.09.2020 issued by DPIIT.

In case of subsequent Orders issued by the Nodal Ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of price bids against this NIT. Default margin of purchase preference shall be 20% for Class-I local supplier only.

- 13. The Bidder shall mandatorily submit Declaration as mentioned under Rule 144(xi) of General Financial Rules, 2017 amendment dt 23.07.2020 issued by Ministry of Finance, Govt. of India. Where applicable, evidence of valid registration by the Competent Authority shall be attached.

The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT). Refer Annexure-IX for 'Restrictions under Rule 144(Xi) of General Financial Rules, 2017 amendment dt: 23.07.2020'.

B. GUIDELINES FOR PREPARATION OF OFFER:

1. Quotation shall be submitted in Single Part Bid, Two Part Bid or Three Part Bid, as called for in the tender:
 - **SINGLE PART BID:** Technical and Commercial Bid with prices along with price summary & filled in BHEL Standard Commercial terms and conditions in a single sealed envelope.
 - **TWO PART BID:** Unpriced offer i.e. "Techno-commercial Bid" with filled in BHEL Standard Commercial terms and conditions in a sealed envelope **along with the copy of the "Price Bid" without the prices** should be enclosed in one cover and the cover must be super scribed "**Techno-commercial offer**) and Priced offer i.e. "Price Bid "containing price summary in a separate sealed envelope and must be super scribed "**Price Bid**".

Both these envelopes shall be enclosed in a single sealed envelope superscribed with enquiry number, due date of tender and any other details as called for in the tender document.

- **THREE PART BID:** Pre-qualification Bid (Part-I), Techno Commercial Bid with filled in BHEL Standard Commercial terms and conditions (Part-II), and Price Bid (Part-III). All three envelopes shall be enclosed in a single sealed envelope superscribed with enquiry number, due date of tender and any other details as called for in the tender document.

If any of the offers (Part I, Part II or Part III) are not submitted before the due date and time of submission (or) if any part of the offer is incomplete, the entire offer of the bidder is liable for rejection.

2. Supplier shall ensure to superscribe each envelope with RFQ number, RFQ Date, RFQ Due date and time, Item Description and Project clearly & boldly. Also mention on the envelope whether it is "Techno Commercial Bid" or "Price Bid" or "Pre-Qualification Bid".

Please ensure complete address, department name and purchase executive name is mentioned on the envelope (before dropping in the tender box or handing over) so that the tender is available in time for bid opening.

3. BHEL standard Commercial Terms and Conditions (duly filled, signed & stamped) must accompany Technical-Commercial offer without fail and should be submitted in original only.

The above indicated submission of Offers in "sealed envelope/hard copy" as mentioned in points B.1-B.3 is applicable for tenders that are not floated through E-Procurement System (EPS).

4. Validity: Unless otherwise specified in SCC (special commercial conditions of contract), the offer will be valid for a period of 90 days from the date of part-I bid opening and in case of Negotiation/Counter-offer/Reverse Auction, price validity will apply afresh for a period of 60 days from the date of according final price by bidder (or) up to original validity period, whichever is later.
5. Any of the terms and conditions not acceptable to supplier, shall be explicitly mentioned in the Techno-Commercial Bid.

If no deviations are brought out in the offer it will be treated as if all terms and conditions of this enquiry are accepted by the supplier without deviation.

6. Deviation to this specification/item description, if any, shall be brought out clearly indicating “DEVIATION TO BHEL SPECIFICATION” without fail, as a part of Techno-Commercial Bid.

If no deviations are brought out in the offer it will be treated as if the entire specification of this enquiry is accepted without deviation.

7. Suppliers shall submit one set of original catalogue, datasheets, bill of materials, dimensional drawings, mounting details and/or any other relevant documents called in purchase specification as part of Technical Bid.
8. “Price Bid” shall be complete in all respects containing price break-up of all components along with all applicable taxes and duties, freight charges (if applicable) etc. Once submitted no modification / addition / deletion will be allowed in the “Price Bid.” Bidders are advised to thoroughly check the unit price, total price to avoid any discrepancy.
9. In addition, bidder shall also quote for erection & commissioning charges/erection supervision & commissioning charges (E&C service charges), documentation charges, testing Charges (type & routine), training charges etc. if & as applicable along with corresponding tax. The price summary must indicate all the elements clearly.
10. Wherever applicable, bidders should indicate “lumpsum” Erection and Commissioning (or) Erection Supervision and Commissioning charges, as applicable (including To & Fro Fare, Boarding, Lodging, Local Conveyance etc.) for carrying out E&C activity and further handing over to customer.

The quotation shall clearly indicate scope of work, likely duration of commissioning, pre-commissioning checklist (if any).

11. Wherever bidders require PAC (Project Authority Certificate)/applicable certificates for import of raw materials, components required for DECC, EPCG Power Projects, Export Projects or other similar projects wherein supplies are eligible for customs duty benefits, lists and quantities of such items and their values (CIF) has to be mentioned in the offer. Prices must be quoted taking into account of such benefits.
12. Prices should be indicated in both figures & words. Bid should be free from correction/overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection.

Any typographical error, totalling mistakes, currency mistake, multiplication mistake, summing mistakes etc. observed in the price bids will be evaluated as per **Annexure III** “Guidelines for dealing with Discrepancy in Words & Figures – quoted in price bid” and BHEL decision will be final.
13. Documents submitted with the offer shall be signed and stamped in each page by authorized representative of the bidder. However, this requirement is not mandatory for offers uploaded through E-Procurement System (EPS).

C. GUIDELINES FOR OFFER SUBMISSION:

The under-mentioned clauses 1, 2&3 will not be applicable for EPS tenders.

1. Offers / Quotations must be dropped in tender box before 13.00 Hrs. on or before due date mentioned in RFQ. The offers are to be dropped in the proper slot of the Tender Box kept in our reception area with caption “CE, SC&PV, DEFENCE”.

Tenders are opened on 3 days in a week (Monday/Wednesday/Friday). Tender must be deposited in the slot corresponding to the day (Monday - Box no.4/Wednesday - Box no. 6 /Friday - Box no.8) while depositing the offer.

2. E-Mail/ Internet/EDI offers received in time shall be considered only when such offers are complete in all respects. In case of offers received through E-mail, please send the offer to the email ID specified in the SCC document of the tender.
3. Offers of Vendors who already have a valid Technical/Commercial MOU with BHEL-EDN for the items of the RFQ shall mention the relevant MOU reference no. and give only such other details not covered in the MOU.
4. In cases where tender documents are bulky, or due to some reasons tender documents are required to be submitted by hand or through posts/couriers, the offers are to be handed over either of the two purchase officers whose names are mentioned in the SCC document of tender RFQ.
5. Tenders will be opened on due date, time and venue as indicated in the RFQ in the presence of bidders at the venue indicated in the RFQ. For EPS tenders, e-mail notifications will be automatically generated and forwarded to registered e-mail ID/s of bidders during opening of tenders.
6. Bidder will be solely responsible:
 - a. For submission of offers before due date and time. Offers submitted after due date and time will be treated as "Late offers" and will be rejected.
 - b. For submission of offers in the correct compartment of the tender box based on the day of due date (Monday/Wednesday/Friday). Please check before dropping your offer in the correct tender box.
 - c. For depositing offers in proper sealed condition in the tender box. If the bidder drops the tender in the wrong tender box (or) if the tender document is handed over to the wrong person, BHEL will not be responsible for any such delays.
 - d. For offers received through email etc., suppliers are fully responsible for lack of secrecy on information and ensuring timely receipt of such offers in the tender box before due date & time (This clause will not be applicable for EPS tenders).

The above indicated submission of Offers as mentioned in points 6.a-6.d is applicable for tenders that are not floated through EPS.

- e. In case of e-tender, all required documents should be uploaded before due date and time. Availability of power, internet connections, system/software requirements etc. will be the sole responsibility of the bidder.

Wherever assistance is needed for submission of e-tenders, help-line numbers as available in the web-site of service provider of BHEL may be contacted.

Purchase Executive/ BHEL shall not be responsible for any of the activities relating to submission of offer.

D. PROCESSING OF OFFERS RECEIVED:

1. Any discount/ revised offer submitted by the supplier on its own shall be accepted provided it is received on or before the due date and time of offer submission (i.e. Part-I bid).
The discount shall be applied on pro-rata basis to all items unless specified otherwise by the bidder.
2. Changes in offers or Revised offers given after Part-I bid opening shall not be considered as a part of the original offer unless such changes/revisions are requested by BHEL.

In case of withdrawal of any Technical/Commercial deviation(s) by the bidder before opening of price bids/conducting the Reverse Auction, revision of price/impact bid will not be accepted.

3. In case there is no change in the technical scope and/ or specifications and/ or commercial terms & conditions, the supplier will not be allowed to change any of their bids after Technical bids are opened (after the due date and time of tender opening).
4. In case of changes in scope and/ or technical specifications and/ or commercial terms & conditions by BHEL and it accounts for price implications from bidders, all techno-commercially acceptable bidders shall be asked by BHEL (after freezing the scope, technical specifications and commercial terms & conditions) to submit the impact of such changes on their price bid.

Impact price will be applicable only for changes in technical specification / commercial conditions by BHEL. The impact price must be submitted on or before the cut-off date specified by BHEL and the original price bid and the price impact bid will be opened together at the time of price bid opening.

5. Un-opened bids (including price bids) will be returned to the respective bidders after release of Purchase order.

Regarding Offers for EPS tenders that get rejected on PQC/ techno-commercial grounds, the bids for the subsequent parts will not be opened i.e., both technical bid and price bid (Parts-II & III) will not be opened in case of rejection on PQC ground and price bid (Part-II/Part-III, as applicable) will not be opened in case of rejection on techno-commercial ground.

6. After receipt of Purchase Order, supplier should submit required documents viz., specified drawings, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report, O & M Manuals and/or any other relevant documents as per Specification/Purchase Order, as and when required by BHEL/Customer.
7. Any deviation to the terms and conditions not mentioned in the quotation by supplier in response to this enquiry will not be considered, if put forth subsequently or after issue of Purchase Order, unless clarification is sought for by BHEL and agreed upon in the Purchase Order.
8. Evaluation shall be on the basis of delivered cost (i.e. "Total Cost to BHEL").

"Total Cost to BHEL" shall include total basic cost, packing & forwarding charges, taxes and/or duties (as applicable), freight charges, taxes on Services, customs clearance charges for imported items, any other cost indicated by bidder for execution of the contract and loading factors (for non-compliance to BHEL Standard Commercial Terms & Conditions).

Benefits arising out of Nil Import Duty on DEEC, EPCG, DFIA Projects, Physical Exports or such 100% exemptions (statutory benefits), project imports, customer reimbursements of statutory duties (like Basic Customs Duty and cess on customs duty), Input tax credits as applicable will also be taken into account for arriving at the Total cost to BHEL (wherever applicable and as indicated in SCC document of tender).

For EPS tenders, it shall be noted that the prices (including discounts) vis-a-vis currency quoted in EPS portal only will be considered as Final for the purpose of evaluation of the lowest bidder.

Bidder shall ensure to indicate the applicable taxes against each line item in online portal, failing to which the same will be considered as inclusive/NIL.

In the course of evaluation, if more than one bidder happens to occupy L-1 status, effective L-1 will be decided by soliciting discounts from the respective L-1 bidders.

In case more than one bidder happens to occupy the L-1 status even after soliciting discounts, the L-1 bidder shall be decided by a toss/draw of lots, in the presence of the respective L-1 bidder(s) or their representative(s).

Ranking will be done accordingly. BHEL's decision in such situations shall be final and binding.

9. The evaluation currency for this tender shall be INR. For evaluation of offers in foreign currency, the exchange rate (TT selling rate of SBI) shall be taken as under:

Single part bids: Date of tender opening

Two/three part bids: Date of Part-I bid opening

Reverse Auction: Date of Part-I bid opening

In case of Performance Bank Guarantee (PBG) also, exchange rate will be considered as mentioned above for converting foreign currency to Indian currency and vice versa.

If the relevant day happens to be a bank holiday, then the exchange rate as on the previous working day of the bank (SBI) shall be taken.

10. Ranking (L-1, L-2 etc.) shall be done only for the techno-commercially acceptable offers.
11. GeM Seller ID shall be mandatory before placement of order/award of contract for goods and services to the successful bidder(s), for orders exceeding Rs.25 lakhs (including all taxes etc.). Department of Expenditure (DoE) OM no.6/9/2020-PPD dated: 24.08.2020 may be referred in this regard.

E. INFORMATION ON PAYMENT TERMS:

1. All payments will be through Electronic Fund transfer (EFT). Vendor has to furnish necessary details as per BHEL standard format (**Refer Annexure IV**) for receiving all payments through NEFT. (Applicable for Indian vendors only).
2. In case of High Sea Sales transaction, customs clearance of the consignment landed on Indian Sea/Air ports will be done by BHEL based on the original HSS documents provided by vendors.

All warehousing charges due to delay in submission of complete and or correct HSS documents to BHEL will be to supplier's account only. Such recovery will be made out of any of the available bills (**Refer Annexure V**).

3. Statutory deductions, if any, will be made and the deduction certificate shall be issued.
 - A. In case vendor does not provide PAN details, the TDS deduction shall be at the maximum percentage stipulated as per the provisions of Income Tax Act.
In addition to the above, Foreign vendors shall also submit relevant details of their bankers like Swift Code, Banker's Name & Address etc.
 - B. TDS deduction as per section 51 of CGST Act, 2017 shall be applicable as per Gazette Notification No. 50/2018-Central Tax, Dated: 13th September 2018 and subsequent notification/s, as and when released by Govt. authorities.

4. Procurement of Goods/ Works/ Services/ Consultancy Services [under clause relating to "Income Tax and Corporate Tax" or "TDS"]

a) Provision w.r.t. TDS on Purchase of Goods under section 194Q of Income Tax Act applicable from 01.07.2021 is as under:

- i. TDS as applicable will be deducted by BHEL under section 194Q of the Income Tax Act, 1961 on Purchases exceeds, the amount of Rupees. 50 Lakhs or limit defined therein from time to time during the financial year under the Indian Income Tax act 1961.

ii. Since BHEL is liable to deduct Income Tax TDS under section 194Q, the provision of TCS as per section 206C(1H) of the Income Tax Act, 1961 shall not be applicable.

b) Higher rate of TDS for non-filers of ITR as per Section 206AB of Income Tax Act, 1961, in case of any vendor who does not filed their Income Tax Return for both of the two previous years preceding to current year and aggregate amount of TDS is more than or equal to Rs. 50,000/- in each of those previous two years (or limit defined by Govt. from time to time), then TDS will be deducted at the higher of following rates:

(i) Twice the rate mentioned in relevant TDS section.

(ii) Twice the rate or rates in force

(iii) 5%.

5. Incomplete documentation will not be accepted. Delayed submission of invoice / documents may result in corresponding delay in payment. In this connection, request to also refer clause: G about invoicing & payment formalities under GST regime.

Applicable documents shall be submitted to the purchaser at the time of execution of supplies/services for availing GST input credits.

F. STANDARD PAYMENT TERMS OF BHEL-EDN:

<u>PURCHASE ORDERS FOR:</u>	<u>SUPPLY WITH SERVICE(S)</u>	<u>SUPPLY ONLY</u>
<u>INDIGENOUS PROCUREMENT</u>	<p>a. 100% of basic value with taxes and freight will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation, whichever is later.</p> <p><u>Note:</u> In case PBG is not furnished, only 90% payment will be released against 100% claim without the consent of Vendor. This 10% basic amount withheld towards PBG will be paid either against submission of supplementary invoice & Original PBG (or) against supplementary invoice without PBG after expiry of Warranty period.</p>	<p>b. 100% of PO value with taxes and freight will be paid in 45 days from the date of dispatch or 15 days from the date of submission of complete set of documentation, whichever is later.</p>
<u>IMPORT PROCUREMENT</u>	<p>c. 100% of basic value will be paid against usance draft of 45 days from the date of AWB/BOL on submission of complete set of documents.</p> <p><u>Note:</u> In case PBG is not furnished, only 90% payment will be released against 100% claim without the consent of Vendor. This 10% basic amount withheld towards PBG will be paid either against submission of supplementary invoice & Original PBG (or) against supplementary invoice without PBG after expiry of Warranty period.</p>	<p>d. 100% of PO value will be paid against usance draft of 45 days from the date of AWB/BOL on submission of complete set of documents.</p>

<u>HIGH-SEA SALES PROCUREMENT</u>	<p>e. 100% of basic value will be paid in 45 days from the date of signing of High Sea Sale agreement or 15 days from the date of submission of complete set of documentation, whichever is later</p> <p><u>Note:</u> In case PBG is not furnished, only 90% payment will be released against 100% claim without the consent of Vendor. This 10% basic amount withheld towards PBG will be paid either against submission of supplementary invoice & Original PBG (or) against supplementary invoice without PBG after expiry of Warranty period.</p>	<p>f. 100% of basic value will be paid in 45 days from the date of signing of High Sea Sale agreement or 15 days from the date of submission of complete set of documentation, whichever is later.</p>
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g. Erection and Commissioning:

Evaluation methodology: Unless and otherwise specified in SCC, E&C charges should not be less than 05% of the main supply value. In case the quoted total E&C value is less than 05% of the main supply value, BHEL shall evaluate Bidders Price deducting differential amount from main supply price proportionally from all items and apportioning towards E&C charges.

Payment term: 100% E&C charges along with tax as applicable, will be paid in 15 days from the date of submission of supplementary invoice/documents against proof of completion of E&C.

h. Erection Supervision and Commissioning:

Evaluation methodology: Unless and otherwise specified in SCC, Commissioning charges should not be less than 05% of the main supply value. In case the quoted total Commissioning charges is less than 05% of the main supply value, BHEL shall evaluate Bidders Price deducting differential amount from main supply price proportionally from all items and apportioning towards Commissioning charges.

Payment term: 100% Commissioning charges along with tax as applicable, will be paid in 15 days from the date of submission of supplementary invoice/documents against proof of completion of Commissioning.

i. Comprehensive Annual Maintenance Contract:

Evaluation methodology: Unless and otherwise specified in SCC, CAMC will be applicable for a period of 04 years from the date of expiry of warranty period (or) from the date of completion of commissioning of equipment, whichever is later and the total CAMC value should not be less than 20% of the main supply value. In case the quoted total CAMC value is less than 20% of the main supply value, BHEL shall evaluate Bidders Price deducting differential amount from main supply price proportionally from all items and apportioning towards CAMC charges.

Payment terms: 100% CAMC charges along with tax as applicable, will be paid in 15 days from the date of submission of supplementary invoice/documents against proof of completion of CAMC on yearly basis.

j. Terms of Payment for Training: 100% payment will be made in 45 days from the date of completion of Training or 15 days from the date of submission of complete set of invoice along with documentary evidence, whichever is later.

LOADING FACTORS FOR DEVIATION IN PAYMENT TERMS:**i) INDIGENOUS PROCUREMENT:**

For payment term with credit period of less than 45 days for indigenous supply, 'Base rate of SBI (as applicable on the date of bid opening; Techno-commercial bid opening in case of two part bids) +6%', shall be considered for loading for the period of relaxation sought.

ii) IMPORT PROCUREMENT:

- 1) For offers received with Sight draft payment term in place of Usance draft, loading applicable will be 1.0% of basic value.
- 2) For offers received with Letter of Credit payment term with Usance of 45 days, loading applicable will be 2.5% of basic value. Additional loading of 2% will be applicable for payment term as Letter of Credit at Sight.

k. Any other variation of payment terms are liable for rejection.

l. Standard payment terms indicated in Clauses: F (a), (b), (c), (d), (e), (f), (g), (h), (i) & (j) will not attract any loading.

Note 1: Basic value of Purchase Order mentioned above will include all components of the purchase order and will exclude only taxes, duties, freight, training charges, E&C and AMC charges (wherever applicable). Wherever the Purchase Order is split into import portion and indigenous portion of supply, minimum % to be quoted for Services, wherever mentioned, will be of both purchase order values put together.

Note 2: In case of multiple packages/units in a power plant, payment of E&C charges will be processed on pro-rata basis.

Note 3: No deviation will be permitted from the duration of Guarantee/Warranty and/or Comprehensive Annual Maintenance Contract period specified in SCC.

Note 4: Indigenous bidder opting to quote with usance LC payment term of 120 days shall note that LC processing charges viz., opening, amendment/ discrepancy (if & as applicable) will be to supplier's account. Bank charges of Seller's bank shall be to Seller's account and bank charges of Owner's bank other than Bill collection charges shall be to Owner's account. Bill collection charges will be borne by Seller.

G. Terms & Conditions to be complied under GST regime:

1. All invoices to contain BHEL-EDN (buyer) GSTIN number: 29AAACB4146P1ZB. However for CGST +SGST/UGST billing outside the state of Karnataka, invoice has to be generated with BHEL's Nodal Agency GSTIN number. Address of Nodal Agency along with GSTIN number will be provided by BHEL at the time of issuing dispatch clearance.
2. The Bidder shall mention Bidder's GSTIN number in all quotations and Invoices submitted.
3. The Bidder shall also mention HSN (Harmonized System of Nomenclature) / SAC (Services Accounting Code) mandatorily in all quotations and invoices submitted.
4. Invoice submitted should be in the format as specified under GST Laws viz., all details as mentioned in Invoice Rules like GST registration number(GSTIN), invoice number with date of issue, quantity, rate, value, taxes with

nomenclature – CGST, SGST, UGST, IGST mentioned separately, HSN Code / SAC Code etc. Invoice should be submitted in original for buyer plus duplicate for credit availment.

5. Payment of GST to Vendor will be made only if it is matching with data uploaded by the Vendor in GST portal.
6. For invoices paid on Reverse charge basis – “Tax payable on reverse charge basis” to be mentioned on the invoice.
7. In case GST credit is delayed/denied to BHEL due to non/delayed receipt of goods and/or tax invoice or expiry of timeline prescribed in GST law for availing such ITC, or any other reasons not attributable to BHEL, GST amount will be recoverable from vendor along with interest levied/ leviable on BHEL.
8. In case vendor delays declaring such invoice in his return and GST credit availed by BHEL is denied or reversed subsequently as per GST law, GST amount paid by BHEL towards such ITC reversal as per GST law will be recoverable from vendor/contractor along with interest levied/ leviable on BHEL.
9. Vendor should intimate BHEL immediately on the same date of invoicing without any delay.
10. In case of discrepancy in the data uploaded by supplier in the GSTN portal or in case of any shortages or rejection in the supply, then BHEL will not be able to avail the tax credit and will notify the supplier of the same. Supplier has to rectify the data discrepancy in the GSTN portal or issue credit note (details to be uploaded in GSTN portal) for the shortages or rejections in the supplies, within the calendar month notified by BHEL.
11. Bidders to note that Rules & Regulations pertaining to E-way bill system are to be strictly adhered to, as and when notified by Govt. authorities.
12. As per Notification no.17/2022-Central Tax dated 01st August,2022 (applicable w.e.f. 01st day of October, 2022), the turnover for applicability of E-invoicing provisions has been reduced from 20 crore rupees to 10 crore rupees. In other words, registered person [other than a SEZ unit and those referred in Rule 54(2), 54(3), 54(4) and 54(4A) of the CGST Rules], whose aggregate turnover in any of the previous FY beginning from 2017-18 and onwards exceeds 10 crores, is required to comply with the requirement of IRN and QR code in respect of supply of goods or services or both to a registered person or for exports.

H. Performance security: To ensure due performance of the contract, Performance Bank Guarantee (PBG) or Security Deposit (SD), hereafter referred as performance security has to be submitted by successful bidder for 05% (unless specified otherwise) of the contract value.

Modes of deposit:

- a) Performance security may be furnished in the following forms:
 - (i) Local cheques of Scheduled Banks (subject to realization)/ Pay Order/ Demand Draft/ Electronic Fund Transfer in favour of BHEL.
 - (ii) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. PBG should be in the format specified in Annexure-VII of ITB and no deviation to this format will be allowed.

(iii) Fixed Deposit Receipt issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act (FDR should be in the name of the Contractor, a/c BHEL).

(iv) Securities available from Indian Post offices such as National Savings Certificates, Kisan Vikas Patras etc. (held in the name of Contractor furnishing the security and duly endorsed/ hypothecated/ pledged, as applicable, in favour of BHEL).

(v) Insurance Surety Bond.

Note: BHEL will not be liable or responsible in any manner for the collection of interest or renewal of the documents or in any other matter connected therewith)

- b) PBG has to be furnished within 14 days (unless specified otherwise) after notification of the award and it should remain valid for a period of 60 days beyond the date of completion of all contractual obligations, including warranty obligations.
- c) The Performance security will be forfeited and credited to BHEL's account in the event of a breach of contract by the supplier.
- d) Performance security shall be refunded to the supplier without interest, after duly performing and completing the contract in all respects but not later than 60 days of completion of all such obligations including the warranty under the contract.
- e) The Performance security shall not carry any interest.

I. PURCHASE PREFERENCE FOR MSE (MICRO AND SMALL ENTERPRISES) VENDORS:

Purchase preference will be given to MSEs as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail the Purchase preference, the bidder must be the manufacturer of the offered product in case of bid for supply of goods.

Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product. Purchase preference to Micro and Small Enterprises clause in the bid, the same will get precedence over this clause.

1. If tendered quantity is Splitable: In tender, participating MSEs quoting price within price band of L1+15 percent shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price from someone other than a MSE and such MSE shall be allowed to supply at least 25% of total tendered value. In case of more than one such MSE, the supply shall be shared proportionately (to tendered quantity).

- 3% of the 25% will be earmarked for women owned MSEs.
- 25% of the 25% (i.e., 6.25% of the total enquired quantity) will be earmarked for SC/ST owned MSE firms provided conditions as mentioned in (1) & (2) are fulfilled.

- In case where no SC/ST category firms are meeting the conditions mentioned in (1) and (2) or have not participated in the tender, the 6.25% of earmarked quantity for SC/ST owned MSE firms will be distributed among the other eligible MSE vendors who have participated in the tender.

2. If tendered quantity is Non-Splittable: If L-1 is not an MSE and MSE Seller (s) has/have quoted price within L-1+ 15% of margin of purchase preference /price band defined in relevant policy, such Seller shall be given opportunity to match L-1 price and contract will be awarded for 100% of total value.

Operation methodology of Purchase preference clause to MSE & MII bidders is as detailed in the attached Office Memorandum issued by Department of Expenditure dt:18.05.2023 (Annexure-VIII).

J. INTEGRITY COMMITMENT IN THE TENDER PROCESS, AND EXECUTION OF CONTRACTS:

1. Commitment by BHEL: BHEL commits to take all measures necessary to prevent corruption in connection with the Tender process and execution of the Contract. BHEL will, during the tender process, treat all bidder / suppliers in a transparent and fair manner, and with equity.
2. Commitment by Bidder(s)/ Contractor(s):
 - a. The Bidder(s)/ Contractor(s) commit(s) to take all measures to prevent corruption and will not directly or indirectly try to influence any decision or benefit which he is not legally entitled to.
 - b. The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding or any actions to restrict competition.
 - c. The Bidder(s)/ Contractor(s) will not commit any offence under the relevant Acts. The Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain or pass on to others, any information or document provided by BHEL as part of business relationship.
 - d. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to the relevant guidelines issued from time to time by Government of India/ BHEL.

If the Bidder(s) / Contractor(s), before award or during execution of the Contract commit(s) a transgression of the above or in any other manner such as to put his reliability or credibility in question, BHEL is entitled to disqualify the Bidder(s) / Contractor (s) from the tender process or terminate the contract and/ or take suitable action as deemed fit.

K. Integrity Pact (IP):

- (a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

Sl	IEM	Email
1.	Shri Otem Dai, IAS (Retd.)	iem1@bhel.in
2.	Shri Bishwamitra Pandey, IRAS (Retd.)	iem2@bhel.in
3.	Shri Mukesh Mittal, IRS (Retd.)	iem3@bhel.in

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note: No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided in SCC document of tender.

L. Conflict of Interest among Bidders/Agents:

*"A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. **The bidder found to have a conflict of interest shall be disqualified.** A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:*

- a) they have controlling partner (s) in common; **or***
- b) they receive **or** have received any direct or indirect subsidy/ financial stake from any of them; **or***
- c) they have the same legal representative/agent for purposes of this bid; **or***
- d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; **or***
- e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid; **or***

- f) *In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorise only one agent/dealer. There can be only one bid from the following:*
- 1. The principal manufacturer directly or through one Indian agent on his behalf; and*
 - 2. Indian/foreign agent on behalf of only one principal;*
- or**
- g) *A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; or*
- h) *In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business."*

Annexure-1

INTEGRITY PACT**Between**

Bharat Heavy Electricals Ltd. (BHEL), a company registered under the Companies Act 1956 and having its registered office at "BHEL House", Siri Fort, New Delhi - 110049 (India) hereinafter referred to as "The Principal", which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the ONE PART

and

_____ (description of the party along with address), hereinafter referred to as "The Bidder/ Contractor" which expression unless repugnant to the context or meaning hereof shall include its successors or assigns of the OTHER PART

Preamble

The Principal intends to award, under laid-down organizational procedures, contract/s for Electrical Lab
Items for TANGEDCO/ 2x660 MW ENnore SEZ Project
 _____ (hereinafter referred to as "Contract"). The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).

In order to achieve these goals, the Principal will appoint panel of Independent External Monitor(s) (IEMs), who will monitor the tender process and the execution of the contract for compliance with the principles mentioned above.

Section 1- Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles: -
 - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
 - 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

Section 2 - Commitments of the Bidder(s)/ Contractor(s)

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. The Bidder(s)/ Contractor(s) commits himself to observe the following principles during participation in the tender process and during the contract execution.

- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/ she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- 2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and shall await their decision in the matter.

Section 3 - Disqualification from tender process and exclusion from future contracts

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s) from the tender process, terminate the contract, if already awarded, exclude from future business dealings and/ or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualified the Bidder (s) from the tender process before award / order acceptance according to Section 3, the Principal is entitled to demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal is entitled to terminate the Contract according to Section 3, or terminates the Contract in application of Section 3 above, the Bidder(s)/ Contractor (s) transgression through a violation of Section 2 above shall be construed breach of contract and the Principal shall be entitled to demand and recover from the Contractor an amount equal to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher, as damages, in addition to and without prejudice to its right to demand and recover compensation for any other loss or damages specified elsewhere in the contract.



Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 (three) years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason or action can be taken as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 6 - Equal treatment of all Bidder (s)/ Contractor (s) / Sub-contractor (s)

- 6.1 The Principal will enter into Integrity Pacts with identical conditions as this Integrity Pact with all Bidders and Contractors.
- 6.2 In case of Sub-contracting, the Principal Contractor shall take the responsibility of the adoption of Integrity Pact by the Sub-contractor(s) and ensure that all Sub-contractors also sign the Integrity Pact.
- 6.3 The Principal will disqualify from the tender process all Bidders who do not sign this Integrity Pact or violate its provisions.

Section 7 - Criminal Charges against violating Bidders/ Contractors /Subcontractors

If the Principal obtains knowledge of conduct of a Bidder, Contractor or Subcontractor, or of an employee or a representative or an associate of a Bidder, Contractor or Subcontractor which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the Vigilance Office.

Section 8 -Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible panel of Independent External Monitor (s) (IEMs) for this Integrity Pact. The task of the IEMs is to review independently and objectively, whether and to what extent the parties comply with the obligations under this Integrity Pact.
- 8.2 The IEMs are not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The IEMs shall be provided access to all documents/ records pertaining to the Contract, for which a complaint or issue is raised before them as and when warranted. However, the documents/records/information having National Security implications and those documents which have been classified as Secret/Top Secret are not to be disclosed.
- 8.4 The Principal will provide to the IEMs sufficient information about all meetings among the parties related to the Contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the IEMs the option to participate in such meetings.



- 8.5 The advisory role of IEMs is envisaged as that of a friend, philosopher and guide. The advice of IEMs would not be legally binding and it is restricted to resolving issues raised by a Bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some Bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process or during execution of Contract, the matter should be examined by the full panel of IEMs jointly, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to the CMD, BHEL at the earliest. They may also send their report directly to the CVO, in case of suspicion of serious irregularities requiring legal/ administrative action. Only in case of very serious issue having a specific, verifiable Vigilance angle, the matter should be reported directly to the Commission. IEMs will tender their advice on the complaints within 30 days.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the IEMs and its terms and conditions.
- 8.9 IEMs should examine the process integrity, they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the Principal should be looked into by the CVO of the Principal.
- 8.10 If the IEMs have reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code / Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the IEMs may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.11 After award of work, the IEMs shall look into any issue relating to execution of Contract, if specifically raised before them. As an illustrative example, if a Contractor who has been awarded the Contract, during the execution of Contract, raises issue of delayed payment etc. before the IEMs, the same shall be examined by the panel of IEMs. Issues like warranty/ guarantee etc. shall be outside the purview of IEMs.
- 8.12 However, the IEMs may suggest systemic improvements to the management of the Principal, if considered necessary, to bring about transparency, equity and fairness in the system of procurement.
- 8.13 The word 'Monitor' would include both singular and plural.

Section 9 - Pact Duration

- 9.1 This Integrity Pact shall be operative from the date this Integrity Pact is signed by both the parties till the final completion of contract for successful Bidder, and for all other Bidders 6 months after the Contract has been awarded. Any violation of the same would entail disqualification of the bidders and exclusion from future business dealings.
- 9.2 If any claim is made/ lodged during currency of this Integrity Pact, the same shall be binding and continue to be valid despite the lapse of this Pact as specified above, unless it is discharged/ determined by the CMD, BHEL.

Atul Saxena

Section 10 - Other Provisions

- 10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.
- 10.2 Changes and supplements as well as termination notices need to be made in writing.
- 10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.
- 10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those bidders / contractors who have entered into this Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.
- 10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.

ಅತುಲ್ ಸೂದ, ಅಭಿಯಂತರರು/ನಿ.ಉ.-ಎಂ.ಎಂ.-ಪಿ.ಆರ್.

अतुल सूद, अभियंता/सी.ई.-एम.एम.-पी.आर.

ATUL SOOD, ENGINEER / CE-MM-PR

BHEL-EDN, MYSURU ROAD, BENGALURU-560026

(Office Seal)

Place Bangalore

Date 11-04-2025

Witness:

(Name & Address)

ಎಸ್. ಸತೀಶ್ ಕುಮಾರ್, ಸಿ. ಪ್ರಬಂಧಕರ/ನಿ.ಉ.-ಎಂ.ಎಂ.-ಪಿ.ಆರ್.
एस. सतीश कुमार, सी. प्रबंधक/सी.ई.-एम.एम.-पी.आर.
S. SATHISH KUMAR, SR. MANAGER / CE-MM-PR
BHEL-EDN, MYSURU ROAD, BENGALURU-560026

For & On behalf of the Bidder/ Contractor
(Office Seal)

Witness:

(Name & Address)

Clause on IP in the tender**“Integrity Pact (IP)”**

- (a) IP is a tool to ensure that activities and transactions between the Company and its Bidders/ Contractors are handled in a fair, transparent and corruption free manner. Following Independent External Monitors (IEMs) on the present panel have been appointed by BHEL with the approval of CVC to oversee implementation of IP in BHEL.

SI	IEM	Email
1.	Shri Arun Chandra Verma, IPS (Retd.)	acverma1@gmail.com
2.	Shri Virendra Bahadur Singh, IPS (Retd.)	vbsinghips@gmail.com

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

Note:

No routine correspondence shall be addressed to the IEM (phone/ post/ email) regarding the clarifications, time extensions or any other administrative queries, etc on the tender issued. All such clarification/ issues shall be addressed directly to the tender issuing (procurement) department's officials whose contact details are provided below:

Details of contact person(s):

Name: Sathish Kumar S
 Dept.: CE-MM-PR
 Address: BHEL-EDN, Bangalore
 Phone: 9449869753
 Email: sathishkumars@bhel.in

Name: Atul Sood
 Dept.: CE-MM-PR
 Address: BHEL-EDN, Bangalore
 Phone: 7795367467
 Email: atulsood@bhel.in

Annexure

Annexure I
Guidelines for Indian Agents

- **Definition of Indian Agent:** An Indian Agent of foreign principal is an individual, a partnership, an association of persons, a private or public company, that carries out specific obligation(s) towards processing of BHEL tender or finalization or execution of BHEL's contract on behalf of the foreign supplier.

In case of yes, vendor to note the following and reply accordingly:

- i. BHEL shall deal directly with foreign vendors, wherever required, for procurement of goods. However, if the foreign principal desires to avail of the services of an Indian agent, then the foreign principal should ensure compliance to regulatory guidelines - which require mandatory submission of an Agency Agreement.
- ii. It shall be incumbent on the Indian agent and the foreign principal to adhere to the relevant guidelines of Government of India, issued from time to time.
- iii. The Agency Agreement should specify the precise relationship between the foreign OEM / foreign principal and their Indian agent and their mutual interest in the business. All services to be rendered by agent/ associate, whether of general nature or in relation to the particular contract, must be clearly stated by the foreign supplier/ Indian agent. Any payment, which the agent or associate receives in India or abroad from the OEM, whether as commission or as a general retainer fee should be brought on record in the Agreement and be made explicit in order to ensure compliance to laws of the country.
- iv. Any agency commission to be paid by BHEL to the Indian agent shall be in Indian currency only.
- v. Tax deduction at source is applicable to the agency commission paid to the Indian agent as per the prevailing rules.
- vi. In the absence of any agency agreement, BHEL shall not deal with any Indian agent (authorized representatives / associate / consultant, or by whatever name called) and shall deal directly with the foreign principal only for all correspondence and business purposes.
- vii. The "Guidelines for Indian Agents of Foreign Suppliers" enclosed at annexure - 'A' shall apply in all such cases.

- viii. The supply and execution of the Purchase Order (including indigenous supplies/ service) shall be in the scope of the OEM/ foreign principal. The OEM/ foreign principal should submit their offer inclusive of all indigenous supplies/ services and evaluation will be based on 'total cost to BHEL'. In case OEM/ foreign principal recommends placement of order(s) towards indigenous portion of supplies/ services on Indian supplier(s)/ agent on their behalf, the credentials/ capacity/ capability of the Indian supplier(s)/ agent to make the supplies/ services shall be checked by BHEL as per the extant guidelines of Supplier Evaluation, Approval & Review Procedure (SEARP), before opening of price bids. In this regard, details may be checked as per Annexure-B (copy enclosed). It will be the responsibility of the OEM/ foreign principal to get acquainted with the evaluation requirements of Indian supplier/ agent as per SEARP available on www.bhel.com.

The responsibility for successful execution of the contract (including indigenous supplies/ services) lies with the OEM/ foreign principal. All bank guarantees to this effect shall be in the scope of the OEM/ foreign principal.

—X—

Vendor's Signature with Seal

Guidelines for Indian Agents of Foreign Suppliers

- 1.0 There shall be compulsory registration of agents for all Global (Open) Tender and Limited Tender. An agent who is not registered with BHEL shall apply for registration in the registration form in line with SEARP.
- 1.1 Registered agents will file an authenticated Photostat copy duly attested by a Notary Public/Original certificate of the Principal confirming the agency agreement and giving the status being enjoyed by the agent and the commission/ remuneration/ salary/ retainership being paid by the principal to the agent before the placement of order by BHEL.
- 1.2 Wherever the Indian representatives have communicated on behalf of their principals and the foreign parties have stated that they are not paying any commission to the Indian agents, and the Indian representative is working on the basis of salary or as retainer, a written declaration to this effect should be submitted by the party (i.e. Principal) before finalizing the order.
- 2.0 **Disclosure of particulars of agents/ representatives in India, if any.**
- 2.1 Tenderers of Foreign nationality shall furnish the following details in their offers:
 - 2.1.1 The Bidder(s)/ Contractor(s) of foreign origin shall disclose the name and address of the agents/ representatives in India if any and the extent of authorization and authority given to commit the Principals. In case the agent/ representative be a foreign Company, it shall be confirmed whether it is existing Company and details of the same shall be furnished.
 - 2.1.2 The amount of commission/ remuneration included in the quoted price(s) for such agents/ representatives in India.
 - 2.1.3 Confirmation of the Tenderer that the commission/ remuneration, if any, payable to his agents/ representatives in India, may be paid by BHEL in Indian Rupees only.
- 2.2 Tenderers of Indian Nationality shall furnish the following details in their offers:
 - 2.2.1 The Bidder(s)/ Contractor(s) of Indian Nationality shall furnish the name and address of the foreign principals, if any, indicating their nationality as well as their status, i.e. whether manufacturer or agents of manufacturer holding the Letter of Authority of the Principal specifically authorizing the agent to make an offer in India in response to tender either directly or through the agents/ representatives.
 - 2.2.2 The amount of commission/ remuneration included in the price (s) quoted by the Tenderer for himself.
 - 2.2.3 Confirmation of the foreign principals of the Tenderer that the commission/ remuneration, if any, reserved for the Tenderer in the quoted price(s), may be paid by BHEL in India in equivalent Indian Rupees on satisfactory completion of the Project or supplies of Stores and Spares in case of operation items.
- 2.3 In either case, in the event of contract materializing, the terms of payment will provide for payment of the commission/ remuneration, if any payable to the agents/ representatives in India in Indian Rupees on expiry of 90 days after the discharge of the obligations under the contract.
- 2.4 Failure to furnish correct and detailed information as called for in paragraph 2.0 above will render the concerned tender liable to rejection or in the event of a contract materializing, the same liable to termination by BHEL. Besides this there would be a penalty of banning business dealings with BHEL or damage or payment of a named sum.

ANNEXURE - II
LIST OF INTERNATIONAL GATEWAY AIRPORTS

For air based consignment, terms of delivery will be on FCA basis from following listed airports only. Vendors are requested to verify this list for use before submission of offer.

SCHEDULE NO	COUNTRY	CURRENCY CODE	AIRPORT
D01	UK	GBP	LONDON (HEATHROW)
D02	UK	GBP	NEW CASTLE
D03	UK	GBP	OXFORD. CHETLAM
D04	UK	GBP	BRISTOL. WELLINGBOROUGH
D05	UK	GBP	BIRMINGHAM
D06	UK	GBP	EAST MIDLANDS
D07	UK	GBP	MANCHESTER
D08	UK	GBP	LEEDS
D09	UK	GBP	GLASGOW
D10	FRANCE	EURO	PARIS (ROISSY) & LYON
D11	SWEDEN	EURO	STOCKHOLM
D12	SWEDEN	EURO	GOTHENBERG & MALMO
D13	ITALY	EURO	ROMA, MILAN
D14	ITALY	EURO	TURIN, BOLOGNA, FLORENCE
D15	NETHERLANDS	EURO	AMSTERDAM, ROTTERDAM
D16	AUSTRIA	EURO	VIENNA, LINZ, GRAZ
D17	BELGIUM	EURO	ANTWERP, BRUSSELS
D18	DENMARK	DKK	COPENHAGEN
D19	JAPAN	JPY	TOKYO, OSAKA
D20	SINGAPORE	SGD	SINGAPORE
D21	CANADA	CAD	TORONTO
D22	CANADA	CAD	MONTREAL
D23	USA	USD	NEW YORK, BOSTON
D24	USA	USD	CHICAGO
D25	USA	USD	SAN FRANCISCO, LOS ANGELES
D26	USA	USD	ALANTA, HOUSTON
D27	GERMANY	EURO	MUNICH, KOLN, DUSSELDORF, HANNOVER, HAMBURG, STUTTGART, DAMSTADT, MANIHIEM, NURUMBERG
D28	GERMANY	EURO	FRANKFURT
D29	GERMANY	EURO	BERLIN
D30	SWITZERLAND	SFR	BASLE, ZURICH, GENEVA
D31	SPAIN	EURO	BARCELONA
D32	AUSTRALIA	AUD	SYDNEY
D33	AUSTRALIA	AUD	MELBOURNE
D34	AUSTRALIA	AUD	PERTH
D35	CZECH	EURO	PRAGUE
D36	HONG KONG	HKD	HONG KONG
D37	NEW ZELAND	NZD	AUCKLAND
D38	RUSSIA	USD	MOSCOW
D39	SOUTH KOREA	USD	KIMPO INTERNATIONAL, INCHEON
D40	FINLAND	EURO	HELSINKI
D41	ROMANIA	EURO	BUCHAREST
D42	NORWAY	EURO	OSLO
D43	IRELAND	EURO	DUBLIN
D44	ISRAEL	USD	TEL AVIV
D45	UAE	USD	DUBAI
D46	OMAN	USD	MUSCAT
D47	EGYPT	USD	CAIRO
D48	TAIWAN	USD	TAIPEI
D49	UKRAINE	USD	KIEV
D50	CHINA	USD	SHANGHAI, SHENZHEN
D51	PHILIPINES	USD	MANILA
D52	MALAYSIA	USD	KUALALUMPUR, PE NANG
D53	CYPRUS	USD	LARNACA
D54	SOUTH AFRICA	USD	JOHANNESBERG, DURBAN
D55	SLOVAKIA	EURO	BARTISLOVA
D56	SAUDI ARABIA	SAR	RIYADH
D57	TURKEY	EURO	ISTANBUL
D58	THAILAND	USD	BANGKOK
D59	BRAZIL	USD	SAO PAULO, RIO DE JANEIRO

ANNEXURE – III

DISCREPANCY IN WORDS & FIGURES – QUOTED IN PRICE BID

Following guidelines will be followed in case of discrepancy in words & figures-quoted in price bid:

(a) If, in the price structure quoted for the required goods/services/works, there is discrepancy between the unit price and the total price (which is obtained by multiplying the unit price by the quantity), the unit price shall prevail and the total price corrected accordingly, unless in the opinion of the purchaser there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price corrected accordingly.

(b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected; and

(c) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a) and (b) above.

(d) If there is such discrepancy in an offer, the same shall be conveyed to the bidder with target date upto which the bidder has to send his acceptance on the above lines and if the bidder does not agree to the decision of the purchaser, the bid is liable to be ignored.

ANNEXURE - IV
Electronic Funds Transfer (EFT) OR
Paylink Direct Credit Form

Please Fill up the form in **CAPITAL LETTERS** only.

TYPE OF REQUEST(Tick one): ☐ CREATE ☐ CHANGE

BHEL Vendor / Supplier Code:

Company Name :

Permanent Account Number(PAN):

Address

City:

PINCODE

STATE

Contact Person(s)

Telephone No:

Fax No:

e-mail id:

1 Bank Name:

2 Bank Address:

3 Bank Telephone No:

4 Bank Account No:

5 Account Type: Savings/Cash Credit

6 9 Digit Code Number of Bank and branch

appearing on MICR cheque issued by Bank

7 Bank IFSC Code(applicable for NEFT)

8 Bank IFSC code(applicable for RTGS)

(Indian Financial System Code)

- A I hereby certify that the particulars given above are true, correct and complete and that I, as a representative for the above named Company, hereby authorise BHEL, EDN, Bangalore to electronically deposit payments to the designated bank account.
- B If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold BHEL / transferring Bank responsible.
- C This authority remains in full force until BHEL, EDN, Bangalore receives written notification requesting a change or cancellation.
- D I have read the contents of the covering letter and agree to discharge the responsibility expected of me as a participant under ECS / EFT.

Date:

Authorised Signatory:

Designation:

Telephone No. with STD Code

Company Seal

Bank Certificate

We certify that _____ has an Account No _____ with us and we confirm that the bank details given above are correct as per our records.

Date:

(.....)

Place:

Signature

Please return completed form along with a blank cancelled cheque or photocopy thereof to:

Bharath Heavy Electricals Ltd,

Attn:

Electronics Division, Mysore Road,

BANGALORE - 560 026

In case of any Query, please call concerned purchase executive.

ANNEXURE - V
PRESENT PROCEDURE FOR SALE IN TRANSIT (HIGH SEA SALES)

In case of High Sea Sales, vendor should submit following documents:

1. ORIGINAL HIGH SEA SALES AGREEMENT

- Sale agreement (on Rs. 200/- non-judicial stamp paper & notarised with 2 witnesses with identity) has to be signed between BHEL and the Party importing material. The date of the sale documents should be in between the date of House Air Way Bill / Bill of Lading and before landing of the goods in Indian origin.
- Following shall be included in the High Sea Sales Agreement:
"THE BUYER ALSO UNDERTAKE DISCHARGES, THE OBLIGATION AND FULFILLMENT OF CONDITIONS, IF ANY, ATTACHED TO THE IMPORTATION, ASSESSMENT AND CLEARANCE OF THE GOODS IN TERMS CUSTOMS TARIFF ACT 1975, THE CUSTOMS ACT 1962 & RULES & REGULATIONS MADE THERE UNDER AND OTHER RELEVANT ACTS, ORDERS, NOTIFICATIONS".

2. ORIGINAL INVOICES: INDIGENOUS RUPEE INVOICE & FOREIGN CURRENCY INVOICE

- Prices should be C.I.F., designated airport/seaport basis.
- I.E.C., C.S.T., K.S.T. Nos. to be mentioned.
- Description of item (Nomenclature), Unit & Quantity in both the Foreign Currency & the Indigenous Invoice in Rupee shall be exactly as per Purchase Order Description of item, Quantity and Unit. The Indigenous Invoice value shall be exactly as per Purchase Order value.
- Seller should give Foreign Currency Invoice from the original consignor. The Foreign Currency Invoice value should be at least 2% (two per cent) less than the Indigenous Rupee Invoice value in equivalent foreign currency.

4. ORIGINAL HOUSE AIR WAY BILL/ BILL OF LADING

- The sale agents should duly endorse House Air Way Bill (HAWB) for air shipments or original Bill of Lading (O.B.L.) for sea shipments and Foreign Currency Invoice in favour of BHEL-EDN.

5. ORIGINAL CARGO ARRIVAL NOTICE FROM FORWARDER.

6. ORIGINAL DELIVERY ORDER ISSUED IN NAME OF BHEL-EDN.

7. ORIGINAL PACKING LIST.

8. A LETTER TO THE COMMISSIONER OF CUSTOMS FOR EFFECTING ABOVE SALE.

9. A LETTER TO THE DEPUTY ASSESSOR (OCTROI) FOR EFFECTING ABOVE SALE IN FAVOUR OF BHEL.

REMARKS: In case vendor needs any clarifications on the above, the same may be sought in writing.

Annexure-VI (List of Consortium Banks)

Sl No	Name of Bank
1	State Bank of India
2	Canara Bank
3	IDBI Bank Limited
4	ICICI Bank Limited
5	HDFC Bank Limited
6	Axis Bank
7	IndusInd Bank Limited
8	Bank of Baroda
9	Exim Bank
10	Indian Bank
11	Punjab National Bank
12	Union Bank of India
13	Yes Bank Limited
14	RBL Bank Ltd.
15	Indian Overseas Bank
16	Kotak Mahindra Bank Limited
17	Federal Bank Limited
18	Hongkong and Shanghai Banking Corporation Ltd

Annexure-X

BANK GUARANTEE FOR PERFORMANCE SECURITY

Bank Guarantee No:

Date:

To
NAME
& ADDRESSES OF THE BENEFICIARY

Dear Sirs,

In consideration of Bharat Heavy Electricals Limited (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) incorporated under the Companies Act, 1956 and having its registered office at _____¹ through its Unit at.....(name of the Unit) having awarded to (Name of the Vendor / Contractor / Supplier) with its registered office at _____² hereinafter referred to as the 'Vendor / Contractor / Supplier', which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns), a contract Ref No.....dated³ valued at Rs.....⁴ (Rupees -----)/FC.....(in words.....) for⁵ (hereinafter called the 'Contract') and the Vendor / Contractor / Supplier having agreed to provide a Contract Performance Bank Guarantee, equivalent to% (.... Percent) of the said value of the Contract to the Employer for the faithful performance of the Contract,

we,, (hereinafter referred to as the Bank), having registered/Head office at and inter alia a branch at being the Guarantor under this Guarantee, hereby, irrevocably and unconditionally undertake to forthwith and immediately pay to the Employer any sum or sums upto a maximum amount of Rs --⁶ (Rupees -----) without any demur, immediately on first demand from the Employer and without any reservation, protest, and recourse and without the Employer needing to prove or demonstrate reasons for its such demand.

Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. _____.

We undertake to pay to the Employer any money so demanded notwithstanding any dispute or disputes raised by the Vendor / Contractor / Supplier in any suit or proceeding pending before any Court or Tribunal, Arbitrator or any other authority, our liability under this present being absolute and unequivocal.

The payment so made by us under this Guarantee shall be a valid discharge of our liability for payment thereunder and the Vendor / Contractor / Supplier shall have no claim against us for making such payment.

We thebank further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Contract/satisfactory completion of the performance guarantee period as per the terms of the Contract and that it shall continue to be enforceable till

all the dues of the Employer under or by virtue of the said Contract have been fully paid and its claims satisfied or discharged.

WeBANK further agree with the Employer that the Employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Contract or to extend time of performance by the said Vendor / Contractor / Supplier from time to time or to postpone for any time or from time to time any of the powers exercisable by the Employer against the said Vendor / Contractor / Supplier and to forbear or enforce any of the terms and conditions relating to the said Contract and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Vendor / Contractor / Supplier or for any forbearance, act or omission on the part of the Employer or any indulgence by the Employer to the said Vendor / Contractor / Supplier or by any such matter or thing whatsoever which under the law relating to sureties would but for this provision have effect of so relieving us.

The Bank also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Vendor / Contractor / Supplier and notwithstanding any security or other guarantee that the Employer may have in relation to the Vendor / Contractor / Supplier 's liabilities.

This Guarantee shall remain in force upto and including.....⁷ and shall be extended from time to time for such period as may be desired by Employer.

This Guarantee shall not be determined or affected by liquidation or winding up, dissolution or change of constitution or insolvency of the Vendor / Contractor / Supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to the Employer in terms thereof.

Unless a demand or claim under this guarantee is made on us in writing on or before the⁵ we shall be discharged from all liabilities under this guarantee thereafter.

We, BANK lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Employer in writing.

Notwithstanding anything to the contrary contained hereinabove:

- a) The liability of the Bank under this Guarantee shall not exceed.....⁶
- b) This Guarantee shall be valid up to⁷
- c) Unless the Bank is served a written claim or demand on or before⁸ all rights under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liabilities under this guarantee irrespective of whether or not the original bank guarantee is returned to the Bank.

We, Bank, have power to issue this Guarantee under law and the undersigned as a duly authorized person has full powers to sign this Guarantee on behalf of the Bank.

For and on behalf of
(Name of the Bank)

Dated.....

Place of Issue.....

¹ NAME AND ADDRESS OF EMPLOYER i.e Bharat Heavy Electricals Limited

² NAME AND ADDRESS OF THE VENDOR /CONTRACTOR / SUPPLIER.

³ DETAILS ABOUT THE NOTICE OF AWARD/CONTRACT REFERENCE

⁴ CONTRACT VALUE

⁵ PROJECT/SUPPLY DETAILS

⁶ BG AMOUNT IN FIGURES AND WORDS

⁷ VALIDITY DATE

⁸ DATE OF EXPIRY OF CLAIM PERIOD

F. No. DPE/3(3)/10-Fin.
Government of India
Ministry of Finance
Department of Public Enterprises

Block No. 14, CGO Complex,
Lodi Road, New Delhi-110003
Dated the 29th May, 2023

To,

Chief Executives of all CPSEs

Subject:- Concurrent application of Public Procurement Policy for Micro and Small Enterprises Order, 2012 and Public Procurement (Preference to Make in India) Order, 2017 - regarding

Sir/Madam,

The undersigned is directed to forward herewith a copy of Department of Expenditure O.M. dated 18th May, 2023 on the subject mentioned above for information and strict compliance.

Encl : As stated


(Kailash Bhandari)
Deputy Director
Tel : 2436-6247

Copy to :- Shri Kanwalpreet, Director, Department of Expenditure, Room No. 264-C,
North Block, New Delhi.

No.F.1/4/2021-PPD
Government of India
Ministry of Finance
Department of Expenditure
Public Procurement Division

264-C, North Block, New Delhi.
18.05.2023.

OFFICE MEMORANDUM

Subject: Concurrent application of Public Procurement Policy for Micro and Small Enterprises Order, 2012 and Public Procurement (Preference to Make in India) Order, 2017.

The undersigned is directed to refer two Preferential Procurement Orders mandated for the Public Procurement in India, namely:

- i. Public Procurement Policy for Micro and Small Enterprises (MSEs) Order dated 23.03.2012 (PPP-MSE Order) issued by Ministry of Micro, Small and Medium Enterprises (MoMSME) in exercise of the powers conferred in Section 11 of the MSME Development Act, 2006. (Last revised on 09.11.2018)
 - ii. Public Procurement (Preference to Make in India) Order, 2017 (PPP-MII order), under Rule 153(iii) of the General Financial Rules (GFRs) 2017, approved by the Cabinet. Implementation of this PPP-MII order is monitored by Department for Promotion of Industry and Internal Trade (DPIIT). (Last revised on 16.09.2020.)
2. It has been brought to the notice of this Department that concurrent application of these two orders are creating confusion to the procuring entities and different procuring entities interpret them differently. In order to bring predictability both to the procuring entities as well as bidders, following guidelines are being issued.

Guidelines

3. The Class-I local suppliers, under PPP-MII Order, participating in any government tender, may or may not be MSEs, as defined under the MSME Act. Similarly, MSEs participating in any government tender, may or may not be Class-I local suppliers. Suppliers may be categorised in following four broad categories for consideration or applicability of purchase preference:

Category	Terminology
Supplier is both MSE & Class-I local supplier.	"MSE Class-I local supplier"
Supplier is MSE but not Class-I local supplier.	"MSE but non-Class-I local supplier"
Supplier is not MSE but is Class-I local supplier.	"Non-MSE but Class-I local supplier"
Supplier is neither MSE nor Class-I local.	"Non-MSE non-Class-I local supplier"

4. The applicability of PPP-MSE Order and PPP-MII Order in various scenarios, involving simultaneous purchase preference to MSEs and Class-I local suppliers under PPP-MSE Order and PPP-MII Order respectively, shall be as under:

a) *Items covered under Para 3(a) of PPP- MII Order, 2017 for which Nodal Ministry has notified sufficient local capacity and competition:* For these items, only Class-I local suppliers are eligible to bid irrespective of purchase value. Hence, Class-II local suppliers or Non-local suppliers, including MSEs which are Class-II local suppliers/ Non-local suppliers, are not eligible to bid. Possible scenarios can be as under:

- (i) L-1 is "MSE Class-I local supplier" - 100% of the tendered quantity is to be awarded to L-1.
- (ii) L-1 is "Non-MSE but Class-I local supplier" - Purchase preference is given to MSEs as per PPP-MSE Order. Balance quantity is to be awarded to the L-1 bidder.

b) *Items reserved exclusively for procurement from MSEs as per PPP-MSE Order:* These items are reserved exclusively for purchase from MSEs. Hence, non-MSEs are not eligible to bid for these items. Possible scenarios can be as under:

- (i) L-1 is "MSE Class-I local supplier" - 100% of the tendered quantity is to be awarded to L-1.
- (ii) L-1 is "MSE non-Class-I local supplier" - Purchase preference is to be given to Class-I local supplier as per PPP-MII Order. Balance quantity, is to be awarded to L-1 bidder.

c) *If items are neither notified for sufficient local capacity nor reserved for MSEs, then the process will be as follows:*

c (a) Items covered under Para 3A(b) of PPP-MII Order are divisible items and both MSEs as well as Class-I local suppliers are eligible for purchase preference. Possible scenarios can be as under:

- (i) L-1 is "MSE Class-I local supplier" - 100% of the tendered quantity is to be awarded to L-1.
- (ii) L-1 is "Non-MSE but Class-I local supplier" - Purchase preference is to be given to MSEs, if eligible, as per PPP-MSE Order. Balance quantity is to be awarded to L-1 bidder.
- (iii) L-1 is "MSE but non-Class-I local supplier" - Purchase preference is to be given to Class-I local suppliers, if eligible, as per PPP-MII Order. Balance quantity is to be awarded to L-1 bidder.
- (iv) L-1 is "Non-MSE non-Class-I local supplier" - Purchase preference is to be given to MSEs as per PPP-MSE Order. Thereafter, purchase preference is to be given to Class-I local suppliers for "50% of the tendered quantity minus quantity allotted to MSEs

above" as per PPP- MII Order. For the balance quantity, contract is to be awarded to L-1 bidder. (Kindly refer to the illustrative example in the annexure).

- c (b) Items covered under Para 3A(c) of PPP-MII Order, 2017 are non-divisible items and both MSEs as well as Class-I local suppliers are eligible for purchase preference. Possible scenarios can be as under:
- (i) L-1 is "MSE Class-I local supplier" - Contract is awarded to L-1.
 - (ii) L-1 is not "MSE Class-I local supplier" but the "MSE Class-I local supplier" falls within 15% margin of purchase preference - Purchase preference is to be given to lowest quoting "MSE Class-I local supplier". If lowest quoting "MSE Class-I local supplier" does not accept the L-1 rates, the next higher "MSE Class-I local supplier" falling within 15% margin of purchase preference is to be given purchase preference and so on.
 - (iii) If conditions mentioned in sub paras (i) and (ii) above are not met i.e. L-1 is neither "MSE Class-I local supplier" nor "MSE Class-I local supplier" is eligible to take benefit of purchase preference, the contract is to be awarded/ purchase preference to be given in different possible scenarios as under:
 - A. L1 is "MSE but non-Class-I local supplier" or "Non-MSE but Class-I local supplier" – Contract is to be awarded to L1.
 - B. L1 is "Non-MSE non-Class-I local supplier" - First purchase preference to be given to MSE as per PPP-MSE Order. If MSE not eligible/ does not accept - purchase preference to be given to Class- I Local supplier as per PPP-MII Order. If Class-I Local supplier also not eligible/ does not accept – contract to be awarded to L-1.
- d) *Items reserved for both MSEs and Class-I local suppliers:* These items are reserved exclusively for purchase from MSEs as well as Class-I local suppliers. Hence, only "MSE Class-I local supplier" are eligible to bid for these items. Non-MSEs/Class-II local suppliers/ Non-local suppliers cannot bid for these items. Hence the question of purchase preference does not arise.
- e) Non-local suppliers, including MSEs falling in the category of Non-local suppliers, shall be eligible to bid only against Global Tender Enquiry.

4
18/5/2023
(Kanwalpreet)
Director

Tel.: -223093811; email: - kanwal.irss@gov.in

To

1. Secretaries of all Central Government Ministries/ Departments.
2. Secretary Department of Public Enterprises with a request for issuing suitable instructions to all Central Public Sector Enterprises in this regard.

Example explaining applicability in scenario explained in para 4 c (a)(iv)

(Scenario: Divisible items, both MSEs as well as Class-I local suppliers eligible for purchase preference and L-1 is "Non-MSE non-Class-I local supplier")

Item – Desktop computer

Qty – 50 Nos.

Details of bids received

Sr. No.	Name of bidder	Rates quoted	Price Ranking	Status of bidder
1.	A	100	L1	"Non-MSE non- Class-I local supplier"
2.	B	110	L2	"Non-MSE but Class-I local supplier"
3.	C	112	L3	"MSE but non- Class-I local supplier"
4.	D	115	L4	"Non-MSE but Class-I local supplier"
5.	E	118	L5	"MSE but non- Class-I local supplier"
6.	F	120	L6	"MSE Class-I local supplier"

1. In this case, first purchase preference is to be given to MSEs as per PPP-MSE Order for 25% of tendered quantity of 50 Nos. i.e. 12.5 Nos. (rounded off to the next whole number say 13 Nos). Accordingly, invite L3 (bidder C), whose quoted rates falls within 15% margin of purchase preference to match L1 price i.e. Rs. 100/- for quantity of 13 Nos. Bidder "E" and "F", although MSEs, will not get purchase preference since their quoted rates don't fall within 15% margin of purchase preference. Bidder C will be considered for order of 13 Nos. on confirmation of reduction of price.
2. For 50% of balance quantity of 37 number (tendered quantity of 50 – 13 awarded to bidder C; assuming bidder C has confirmed to accept L1 rates), purchase preference will be given to lowest Class-I local supplier as per PPP-MII Order. Accordingly, bidder B will be invited to match L-1 price for 50% of 37 Nos i.e. 18.5 (say 19 Nos of computers). If bidder "B" does not accept the L1 price i.e. price of Rs. 100/- per unit, next higher Class-I local supplier falling within 20% margin of purchase preference, i.e. bidder "D", may be invited to match L-1 price for 19 Nos. of computers and so on.
3. For remaining quantity i.e. 18 Nos (50-13-19), the contract will be awarded to lowest quoting bidder i.e. Bidder "A", who is L-1 in the example.

Annexure-X

Restrictions under Rule 144(xi) of General Financial Rules, 2017 amendment dt: 23.07.2020

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority.
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.
- III. "Bidder from a country which shares a land border with India" for the purpose of this Order means :-
 - a. An entity incorporated, established or registered in such a country; or
 - b. A subsidiary of an entity incorporated, established or registered in such a country; or
 - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
 - d. An entity whose *beneficial owner* is situated in such a country; or
 - e. An Indian (or other) agent of such an entity; or
 - f. A natural person who is a citizen of such a country; or
 - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above
- IV. The *beneficial owner* for the purpose of (iii) above will be as under:
 1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.

Explanation--

 - a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company;
 - b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements;
 2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;
4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

V. An Agent is a person employed to do any act for another, or to represent another in dealings with third person.

(On Company Letter Head)

FORM NO. 10F

[See sub-rule (1) of rule 21AB]

Information to be provided under sub-section (5) of section 90 or sub-section (5) of section 90A of the Income-tax Act, 1961

I..... son/daughter of Mr in the capacity of.....
(Designation) do provide the following information, relevant to the previous year **2021-22** in case of for the purposes of sub-section (5) of section 90/section 90A:-

Sl.No.	Nature of information	Details
(i)	Status (individual; company, firm etc.) of the assessee	Company
(ii)	Permanent Account Number (PAN) of the assessee if allotted	
(iii)	Nationality (in the case of an individual) or Country or specified territory of incorporation or registration (in the case of others)
(iv)	Assessee's tax identification number in the country or specified territory of residence and if there is no such number, then, a unique number on the basis of which the person is identified by the Government of the country or the specified territory of which the assessee claims to be a resident

(v)	Period for which the residential status as mentioned in the certificate referred to in sub-section (4) of section 90 or sub-section (4) of section 90A is applicable	<u>2021-22</u>
(vi)	Address of the assessee in the country or territory outside India during the period for which the certificate, mentioned in (v) above, is applicable

I have obtained a certificate to in sub-section (4) of section 90 of sub-section (4) of section 90A from the Government of..... (name of country or specified territory outside India)

Signature:.....

Name:.....

Address:.....

Email ID:.....

Contact Number.....

Permanent Account Number:.....

Verification

I..... do hereby declare that to the best of my knowledge and belief what is stated above is correct complete and is truly stated. Verified today the..... day of.....

Signature of the person providing the information

Place:.....

(On Company Letter Head)

No Business Connection or Permanent Establishment Certificate

Date

To

Bharat Heavy Electricals Limited
Electronics Division, PB NO. 2606,
Mysore Road, Bangalore
India - 560026

Sir,

Sub: No Business Connection or Permanent Establishment declaration for FY **2021-22**

This is to certify that (Name of the supplier) is a company incorporated in(country) and does not have any business connection in India as per the provision of Section 9 of the Income Tax Act 1961 or any Permanent Establishment as defined in Article 5 of the India and(country) DTAA.

We hereby certify that we will notify BHEL in case of any change in the status as certified above.

For

Authorised Signatory

(Note – Please refer definition of the Business Connection on reverse and Permanent Establishment in the relevant DTAA)

"Business connection" as defined in Section 9 of the Income Tax Act shall include any business activity carried out through a person who, acting on behalf of the non-resident,—

- (a) has and habitually exercises in India, an authority to conclude contracts on behalf of the non-resident or habitually concludes contracts or habitually plays the principal role leading to conclusion of contracts by that non-resident and the contracts are—
 - (i) in the name of the non-resident; or
 - (ii) for the transfer of the ownership of, or for the granting of the right to use, property owned by that non-resident or that non-resident has the right to use; or
 - (iii) for the provision of services by the non-resident; or
- (b) has no such authority, but habitually maintains in India a stock of goods or merchandise from which he regularly delivers goods or merchandise on behalf of the non-resident; or
- (c) habitually secures orders in India, mainly or wholly for the non-resident or for that non-resident and other non-residents controlling, controlled by, or subject to the same common control, as that non-resident:

Provided that such business connection shall not include any business activity carried out through a broker, general commission agent or any other agent having an independent status, if such broker, general commission agent or any other agent having an independent status is acting in the ordinary course of his business :

Provided further that where such broker, general commission agent or any other agent works mainly or wholly on behalf of a non-resident (hereafter in this proviso referred to as the principal non-resident) or on behalf of such non-resident and other non-residents which are controlled by the principal non-resident or have a controlling interest in the principal non-resident or are subject to the same

common control as the principal non-resident, he shall not be deemed to be a broker, general commission agent or an agent of an independent status

For the removal of doubts, it is hereby clarified with explanation-2A, that the significant economic presence of a non-resident in India shall constitute "business connection" in India and "significant economic presence" for this purpose, shall mean—

- (a) transaction in respect of any goods, services or property carried out by a non-resident in India including provision of download of data or software in India, if the aggregate of payments arising from such transaction or transactions during the previous year exceeds such amount as may be prescribed; or
- (b) systematic and continuous soliciting of business activities or engaging in interaction with such number of users as may be prescribed, in India through digital means:

Provided that the transactions or activities shall constitute significant economic presence in India, whether or not,—

- (i) the agreement for such transactions or activities is entered in India; or
- (ii) the non-resident has a residence or place of business in India; or
- (iii) the non-resident renders services in India:

Thresholds for the purposes of significant economic presence.

11UD. (1) For the purposes of clause (a) of Explanation 2A to clause (i) of sub-section (1) of section 9, the amount of aggregate of payments arising from transaction or transactions in respect of any goods, services or property carried out by a non-resident with any person in India, including provision of download of data or software in India during the previous year, shall be two crore rupees;

(2) For the purposes of clause (b) of Explanation 2A to clause (i) of sub-section (1) of section 9, the number of users with whom systematic and continuous business activities are solicited or who are engaged in interaction shall be three lakhs.

On Bidder Letter Head

Date:

To,

M/s Bharat Heavy Electricals Ltd.

Electronics Division, Mysore Road,'

Bangalore – 560026

Sub: Model Clause / Certificate as per clause 9 (a) of Revised Public Procurement (Preference to Make in India Order, 2017 of DPIIT dated 19.07.2024

Ref: BHEL Tender / RFQ / NIT Number

I (authorized signatory for M/s) a 'Class-I Local Supplier' / 'Class-II Local Supplier' at the time of tender, bidding or solicitation hereby confirm that the item meets the Local Content requirement for 'Class-I Local Supplier' / 'Class-II Local Supplier' .

Tick appropriate option & cut the other one:

1) We are the reseller/distributor of the quoted product and the Local Content percentage is
Break up of Local value addition to be furnished below (inclusive of Taxes):

a)

b)

c)

OEM certificate for country of origin to be submitted for above.

2) We are not the reseller/distributor of the quoted product and the Local Content percentage is
.....

The address is as below, where the local content / value addition is made:

[Factory Address]

For M/s

Authorized Signatory

(with company seal & Name)



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड

Bharat Heavy Electricals Ltd.,
(A Government of India undertaking)
Electronics Division

PB 2606 , Mysore Road Bangalore , 560026 INDIA

CE: PR: 002- Rev 03

GENERAL COMMERCIAL CONDITIONS FOR CONTRACT

These 'General Commercial Conditions for Contract for Purchase' herein after referred to as GCC apply to all enquiries, tenders, requests for quotations, orders, contracts and agreements concerning the supply of goods and the rendering of related services (hereinafter referred to as "deliveries") to Bharat Heavy Electricals Limited and any of its units, regions or divisions (hereinafter referred to as "BHEL" or the Purchaser) or its projects/ customers.

Any deviations from or additions to these GCC require BHEL's express written consent. The general terms of business or sale of the vendor shall not apply to BHEL. Acceptance, receipt of shipments or services or effecting payment shall not mean that the general terms of business or sale of the vendor have been accepted.

Orders, agreements and amendments thereto shall be binding if made or confirmed by BHEL in writing. Only the Purchasing department of BHEL is authorized to issue the Purchase Order or any amendment thereof.

Definitions: Throughout these conditions and in the specifications, the following terms shall have the meanings assigned to them, unless the subject matter or the context requires otherwise.

- a) 'The Purchaser' means Bharat Heavy Electricals Limited, Electronics division, Mysore road, Bangalore 560 026, a Unit of Bharat Heavy Electricals Limited (A Govt. of India Undertaking) incorporated under the Companies Act having its registered office at BHEL House, Siri Fort, New Delhi-110049, India and shall be deemed to include its successors and assigns. It may also be referred to as BHEL.
- b) 'The vendor' means the person, firm, company or organization on whom the Purchase Order is placed and shall be deemed to include the vendor's successors, representative heirs, executors and administrator as the case may be. It may also be referred to as Seller, Contractor or Supplier.
- c) 'Contract' shall mean and include the Purchase Order incorporating various agreements, viz. tender/ RFQ, offer, letter of intent/acceptance/ award, the General Conditions of Contract and Special Conditions of Contract for Purchase, Specifications, Inspection/ Quality Plan, Schedule of Prices and Quantities, Drawings, if any enclosed or to be provided by BHEL or his authorized nominee and the samples or patterns if any to be provided under the provisions of the contract.
- d) 'Parties to the Contract' shall mean the 'The Vendor' and the Purchaser as named in the main body of the Purchase Order.

Order of Precedence:

In case of any inconsistency or contradiction between any of the documents, the order of precedence shall be Purchase Order, LOI / LOA, Special Conditions of Contract and General Conditions of Contract for commercial conditions; and specific agreement on technical conditions, RFQ/offer and specification for Technical Conditions.

Interpretation:

In the contract, except where the context requires otherwise:

- a) words indicating one gender include all genders;
- b) words indicating the singular also include the plural and words indicating the plural also include the singular;

- c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing, and
- d) "Written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record.

Applicable Conditions:

1. **Price Basis:** All prices shall be firm until the purchase order is executed / completed in all respects. No price variations / escalation shall be permitted.
2. **Ordering and confirmation of Order:** Vendor shall send the order acceptance on their company letter head/ through e-mail within a week from the date of receipt of Purchase Order or such other period as specified/ agreed by BHEL. BHEL reserves the right to revoke the order placed if the order confirmation differs from the original order placed. The acceptance of goods/services/supplies by BHEL as well as payments made in this regard shall not imply acceptance of any deviations.
The purchase order will be deemed to have been accepted if no communication to the contrary is received within one week (or the time limit as specified/agreed by BHEL) from the date of receipt of the purchase order.

3. **Documentation:** After receipt of Purchase Order, vendor should submit necessary documents (if & as applicable) like drawings specified, bill of materials, datasheets, catalogues, quality plan, test procedure, type test report, O & M Manuals and/or any other relevant documents as per Specification/Purchase Order, as and when required by BHEL/Customer.
At any stage within the contract period, the vendor shall notify of any error, fault or other defect found in BHEL's documents /specifications or any other items for reference. If and to the extent that (taking account of cost and time) any vendor exercising due care would have discovered the error, fault or other defect when examining the documents/specifications before submitting the tender, the time for completion shall not be extended. However if errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the vendor's documents, they shall be corrected at his cost, notwithstanding any consent or approval.

4. **Penalty:**

- a. **For delay in documentation:** In the event of delay in submission of complete set of specified documents ((like drawings, bill of materials, datasheets, catalogues, quality plan etc. as called in tender specifications including soft copies wherever applicable) in required sets beyond two(02) weeks (or as agreed/indicated in the SCC/Purchase Order) from the date of receipt of Purchase Order(by email), penalty at 0.5% (half percent) per week or part thereof, limited to a maximum of 5% (five percent) of the basic material value of the Purchase Order will be applicable.

Penalty for delayed documentation if applicable, shall be deducted at the time of first supply payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be deducted. GST as applicable will be recovered along with penalty amount.

- b. **For delay in delivery:** In the event of delay in agreed contractual delivery as per Purchase Order, penalty @ 0.5 % (half percent) per week or part thereof but limited to a max of 10% (ten percent) value of undelivered portion (basic material cost) will be applicable. Delivery will commence from the date of issue of Manufacturing clearance along with approved document. The date for which Inspection call is issued by vendor along with test certificates / test reports /Certificate of Conformance / calibration reports, as proof of completion of manufacturing will be treated as date of deemed delivery for penalty calculation. In the absence of furnishing such document indicated above as proof of completion of manufacturing along with inspection call, actual date of inspection will be considered as date of deemed delivery and BHEL will not be responsible for delay in actual date of inspection.

Penalty for delayed delivery if applicable, shall be deducted at the time of first supply payment. If penalty is applicable for duration of less than a week, penalty @ 0.5% (half percent) of the basic material value will be

deducted.

5. Contract variations (Increase or decrease in the scope of supply): BHEL may vary the contracted scope as per requirements at site. If vendor is of the opinion that the variation has an effect on the agreed price or delivery period, BHEL shall be informed of this immediately in writing along with technical details. Where unit rates are available in the Contract, the same shall be the basis for such additional work. Vendor shall not perform additional work before BHEL has issued written instructions/ amendment to the Purchase Order to that effect. The work which the vendor should have or could have anticipated in terms of delivering the service(s) and functionality (i.e.) as described in this agreement, or which is considered to be the result of an attributable error on the vendor's part, shall not be considered additional work.
6. Pre-dispatch inspection at Seller premises: Before dispatch, the goods will be inspected by Buyer / Consignee or their Authorized Representative or by Nominated External Inspection Agency (independently or jointly with Buyer or Consignee as decided by the Buyer) at Seller premises (or at designated place for inspection as declared / communicated by the seller) for their compliance to the contract specification. For in-house testing, the Sellers will provide necessary facilities free of cost.

Prior written notice of at least 10 days shall be given along with internal test certificates/COC and applicable test certificates. Buyer will notify the Seller about the Authorized Representative/ Nominated External Inspection Agency and the date for testing. Scope of inspection is limited to 'approved Quality plan or QA Checklist or Purchase specification'. BHEL reserves the right for conducting repeat test, if required. All tests have to be conducted as applicable in line with approved Quality plan or QA Checklist or Purchase specification and original reports shall be furnished to BHEL-EDN, Bangalore for verification/acceptance for issue of dispatch clearance.

All costs related to re-inspection(s) shall be borne by vendor. Whether the Contract provides for tests on the premises of the vendor or any of his Sub-contractor/s, vendor shall be responsible to provide such assistance, labour, materials, electricity, fuel, stores, apparatus, instruments as may be required and as may be reasonably demanded to carry out such tests efficiently. Cost of any type test or such other special tests shall be borne by BHEL only if specifically agreed to in the purchase order.

7. Transit Insurance: Transit insurance coverage between vendor's works and project site shall be to the account of BHEL, unless specifically agreed otherwise. However, vendor shall send intimation directly to insurance agency (as mentioned in dispatch instructions issued by BHEL) through fax/courier/e-mail, immediately on dispatch of goods for covering insurance. A copy of such intimation sent by vendor to insurance agency shall be given to BHEL along with dispatch documents. Dispatch documents will be treated as incomplete without such intimation copy. BHEL shall not be responsible for sending intimations to insurance agency on behalf of the vendor.
8. Mode of dispatch:
Indigenous Scope: By road on Door Delivery Consignee Copy attached basis through your approved transporter (unless otherwise indicated in Dispatch Instructions), only on receipt of Despatch Clearance from BHEL.
Import Scope: By Air/Sea through BHEL approved Freight Forwarder/supplier approved Consolidator respectively as per agreed contractual terms, only on receipt of Dispatch Clearance from BHEL.
9. Changes in Statutory levies:
 If any rates of Tax are increased or decreased, a new Tax is introduced, an existing Tax is abolished, or any change in interpretation or application of any Tax occurs in the course of the execution of Contract, which was or will be assessed on the bidder in connection with performance of the Contract, an equitable adjustment of the Contract Price shall be made to fully take into account any such change by addition to the Contract Price or deduction there from, as the case may be. However, these adjustments would be restricted to direct transactions between BHEL and the bidder /agent of foreign bidder (if applicable). These adjustments shall not be applicable on procurement of raw materials, intermediary components etc. by the bidder /agent.

It is the obligation on the part of supplier to discharge his liability by payment of GST to Government of India in cash (or) utilization of input Tax credit in respect of such supply or services through GST invoice under this contract, so that BHEL will avail input tax credit on such supply. In the event that the input tax credit of the GST charged by the supplier is denied by the tax authorities to BHEL due to reasons attributable to supplier, BHEL shall be entitled to recover such amount from the supplier by way of adjustment from the next invoice or from Bank Guarantee. In addition to the amount of GST, BHEL shall also be entitled to recover interest and penalty, in case same is imposed by the tax authorities on BHEL.

If BHEL is not able to avail the credit of CGST & SGST/IGST, partially or entirely because the supplier issued a defective invoice or failed to produce the requisite documents, then the supplier shall immediately indemnify BHEL for such loss of tax credit which would be otherwise available to BHEL. BHEL, in such case, may, at its sole discretion, decide to recover such loss by way of deduction from payment due to the supplier or invoking the contract Performance Bank Guarantee.

The classification of goods as per GST should be correctly done by the supplier to ensure that ITC benefit is not lost to the BHEL on account of any error on the part of the supplier.

Any statutory increase in the CGST & SGST / IGST or any new or additional taxes or duties imposed within the Contractual Delivery Period or extended Contractual Delivery Period shall be to BHEL's account whereas if it is after Contractual Delivery period, it shall be to supplier's account. Any corresponding decrease on account of above shall be passed on to BHEL.

In case GST or any taxes or duties is not applicable at present but become applicable at the time of contractual delivery period due to any reason other than statutory, the same shall be borne by supplier.

10. Availing duty/tax exemption benefits by bidder, wherever applicable: BHEL shall issue the required Certificate/s, as per relevant policies of the Govt. of India, to facilitate the bidders to avail any such benefits under the Contract. In case of failure of the bidders to receive the benefits partly or fully from the Govt. of India and/or in case of any delay in receipt of such benefits, BHEL shall neither be liable nor responsible in any manner whatsoever.
11. Taxes against sub-vendor dispatches: All taxes/levies, as applicable in respect of all components, equipments and material to be despatched directly from the sub-vendor's works to Site irrespective of the fact whether such taxes and levies are assessable and chargeable on Vendor or the BHEL, shall be to the vendor's account and no separate claim in this regard will be entertained by BHEL.
12. High Sea Sales (HSS): Customs clearance of the consignment landed on Indian Sea/Air ports will be done by BHEL based on the original HSS documents provided by vendors.
Any delay in submission of complete/correct HSS documents to BHEL may incur demurrage charges. All demurrage charges on account of incomplete /incorrect HSS documents submission by vendor will be to vendor's account and all such charges will be recovered from any of the available vendor bills with BHEL.
13. Packaging and dispatch: The Seller shall package the goods safely and carefully and pack them suitably in all respects considering the peculiarity of the material for normal safe transport by Sea/ Air / Rail/ Road to its destination suitably protected against loss, damage, corrosion in transit and the effect of tropical salt laden atmosphere. The packages shall be provided with fixtures/ hooks and sling marks as may be required for easy and safe handling. If any consignment needs special handling instruction, the same shall be clearly marked with standard symbols / instructions. Hazardous material should be notified as such and their packing, transportation and other protection must conform to relevant regulations.
The packing, shipping, storage and processing of the goods must comply with the prevailing legislation and regulations concerning safety, the environment and working conditions. *For facilitating smooth movement of shipment, the consignment has to be in stackable condition.* Any Imported/Physical Exports items packed with raw/ solid wood packing material should be treated as per ISPM – 15 (fumigation) and accompanied by Phytosanitary/ Fumigation certificate. If safety information sheets (MSDS – Material Safety Data Sheet)

exist for an item or the packaging, vendor must provide this information without fail along with the consignment.

Each package must be marked with Consignee name, Purchase order number, Package number, Gross weight and net weight, dimensions (LxBxH) and Seller's name. Packing list of goods inside each package with PO item number and quantity must also be fixed securely outside the box to indicate the contents of each box. Total number of packages in the consignment must also be indicated in the packing list.

Separate packing & identification of items should be as follows.

1. Main Scope - All items must be tagged with part no. & item description.
2. Commissioning accessories/spares - All items must be tagged with part no. & item description.
3. Mandatory spares - All items must be tagged with part no. & item description.

Nevertheless, vendor shall adhere to dispatch & packing instructions issued by BHEL at the time of dispatch.

14. Assignment of Rights & Obligations; Subcontracting: Vendor is not permitted to subcontract the delivery or any part thereof to third party or to assign the rights and obligations resulting from this agreement in whole or in part to third parties without prior written permission from BHEL. Any permission or approval given by the BHEL shall, however, not absolve the vendor of the responsibility of his obligations under the Contract.
15. Progress report: Vendor shall render such report as to the progress of work and in such form as may be called for by the concerned purchase officer from time to time. The submission and acceptance of such reports shall not prejudice the rights of BHEL in any manner.
16. Non-disclosure and Information Obligations: Vendor shall provide with all necessary information pertaining to the goods as it could be of importance to BHEL. Vendor shall not reveal any specified confidential information that may be divulged by BHEL to Vendor's employees not involved with the tender/ contract & its execution and delivery or to third parties, unless BHEL has agreed to this in writing beforehand. Vendor shall not be entitled to use the BHEL name in advertisements and other commercial publications without prior written permission from BHEL.
17. Cancellation /Termination of contract: BHEL shall have the right to completely or partially terminate the agreement by means of written notice to that effect. Termination of the Contract, for whatever reason, shall be without prejudice to the rights of the parties accrued under the Contract up to the time of termination.
BHEL shall have the right to cancel/foreclose the Order/ Contract, wholly or in part, in case it is constrained to do so on account of any decline, diminution, curtailment or stoppage of the business.
18. Breach of Contract, Remedies & Termination: In case of breach of contract (failure of supplier), wherever the value of Performance security available with BHEL against the said contract is atleast 10% of the contract value, the same shall be encashed.

In case the value of the security instruments available with BHEL is less than 10% of the contract value, the balance amount will be recovered from other financial remedies (i.e. available bills of the contractor, retention amount, etc. with BHEL) or legal remedies shall be pursued.

Further, levy of liquidated damages, debarment, termination, de-scoping, short-closure, etc. shall be applied as per provisions of the contract.

19. Shortages: In the event of shortage on receipt of goods and/or on opening of packages at site, all such shortages, caused by supplier's act or omission, shall be made good at free of cost within a reasonable time that BHEL may allow from such intimation.

Transit Damages: In the event of receipt of goods in damaged condition or having found them so upon opening of packages at site, supplier shall make good of all such damages within a reasonable time from such intimation by BHEL. In case BHEL raises an insurance claim, the cost of material limited to insurance settled amount less handling charges will be reimbursed to supplier.

20. Remedial work: Notwithstanding any previous test or certification, BHEL may instruct the vendor to remove and replace materials/goods or remove and re-execute works/services which are not in accordance with the purchase order. Similarly BHEL may ask the vendor to supply materials or to execute any services which are urgently required for any safety reasons, whether arising out of or because of an accident, unforeseeable event or otherwise. In such an event, Vendor shall provide such services within a reasonable time as specified by BHEL.
21. Indemnity Clause: Vendor shall comply with all applicable safety regulations and take care for the safety of all persons involved. Vendor is fully responsible for the safety of its personnel or that of his subcontractor's men / property, during execution of the Purchase Order and related services. All statutory payments including PF, ESI or other related charges have to be borne by the vendor. Vendor is fully responsible for ensuring that all legal compliances are followed in course of such employment. Vendor shall fully indemnify and keep indemnified BHEL against all claims of whatsoever nature arising during the course and out of execution of this Order/Contract.
22. Product Information, Drawings and Documents: All specified drawings, technical documents or other technical information received by Vendor from BHEL or vice versa shall not, without the consent of the other party, be used for any other purpose than that for which they were provided. They may not, without the consent of the Disclosing party, otherwise be used or copied, reproduced, transmitted or communicated to third parties. All information and data contained in general product documentation, whether in electronic or any other form, are binding only to the extent that they are by reference expressly included in the contract.

Vendor, as per agreed date/s but not later than the date of delivery, provide free of charge information and drawings which are necessary to permit and enable BHEL to erect, commission, operate and maintain the product. Such information and drawings shall be supplied in as many numbers of copies as may be agreed upon.

All intellectual properties, including designs, drawings and product information etc. exchanged during the formation and execution of the Contract shall continue to be the property of the disclosing party.

23. Intellectual Property Rights, Licenses: If any Patent, design, Trade mark or any other intellectual property rights apply to the delivery (goods/related service) or accompanying documentation shall be the exclusive property of the Vendor and BHEL shall be entitled to the legal use thereof free of charge by means of a non-exclusive, worldwide, perpetual license. All intellectual property rights that arise during the execution of the Purchase Order/ contract for delivery by vendor and/or by its employees or third parties involved by the vendor for performance of the agreement shall belong to BHEL. Vendor shall perform everything necessary to obtain or establish the above mentioned rights. The Vendor guarantees that the delivery does not infringe on any of the intellectual property rights of third parties. The Vendor shall do everything necessary to obtain or establish the alternate acceptable arrangement pending resolution of any (alleged) claims by third parties. The Vendor shall indemnify BHEL against any (alleged) claims by third parties in this regard and shall reimburse BHEL for any damages suffered as a result thereof.
24. Force Majeure: If at any time during the continuance of the Contract, the performance in whole or in part by either party of any obligation under this Contract shall be prevented or delayed by the reasons of any war, hostility, acts of the public enemy, epidemics, civil commotion, sabotage, fires, floods, explosion, quarantine restrictions, strikes, lockouts or act of God provided notice of happening of such event duly evidenced with documents is given by one party to the other within 10 days from the date of occurrence thereof, neither party shall be by reasons of such event, be entitled to terminate the Contract nor shall either party have any claim for damages against the other in respect of such non-performance or the delay in performance, and deliveries under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the Buyer as to whether the deliveries have been so resumed or not, shall be final and conclusive.

If force majeure applies, dates by which performance obligations are scheduled to be met will be extended for a period of time equal to the time lost due to any delay so caused.

Notwithstanding above provisions, in an event of Force Majeure, BHEL reserves for itself the right to cancel the order/ contract, wholly or partly, in order to meet the overall project schedule and make alternative arrangements for completion of deliveries and other schedules.

25. Warranty:

Wherever required, and so provided in the specifications/ Purchaser Order, the Seller shall ensure that the goods supplied shall comply with the specifications laid down, for materials, workmanship and performance.

Unless otherwise specified in SCC, warranty period shall be applicable for a period of 24 months from the date of delivery of goods or 18 months from the date of commissioning of goods, whichever is earlier.

The warranty period as described above shall apply afresh to replaced, repaired or re-executed parts of a delivery. Unless otherwise specifically provided in the Purchase Order, Vendor's liability shall be co terminus with the expiration of the applicable warranty period.

26. Limitation of Liability: Vendor's liability towards this contract is limited to a maximum of 100% of the contract value and consequential damages are excluded. However the limits of liability will have no effect in cases of criminal negligence or wilful misconduct.

The total liability of Vendor for all claims arising out of or relating to the performance or breach of the Contract or use of any Products or Services or any order shall not exceed the total Contract price.

27. Liability during warranty: Vendor shall arrange replacement / repair of all the defective materials / services under its obligation during the warranty period. The rejected goods shall be taken away by vendor and replaced / repaired. In the event of the vendor's failure to comply, BHEL may take appropriate action including disposal of rejections and replenishment by any other sources at the cost and risk of the vendor.

In case, defects attributable to vendor are detected during Warranty period or where the commissioning call is issued within the warranty period, vendor shall be responsible for replacement/ repair of the goods as required by BHEL at vendor's cost even after expiry of warranty period.

Further if the equipment or any part thereof cannot be used by reason of such defect and/or making good of such defect, the warranty period of the equipment or such part, as the case may be, shall be extended by a period equal to the period during which the equipment or such part cannot be used by BHEL because of any of the aforesaid reasons. Upon correction of the defects in the facilities or any part thereof by repair/replacement, such repair/replacement shall have the warranty period for a period of twelve (12) months from the time such replacement/repair of the equipment or any part thereof has been completed.

28. Liability after warranty period: At the end of the warranty, the Vendor's liability ceases except for latent defects. For the purpose of this clause, latent defects shall be the defects inherently lying within the material or arising out of design deficiency which do not manifest themselves during the warranty Period, but later. The Contractor's liability for latent defects warranty for the equipment including spares shall be limited to a period of six months from the end of the warranty period of the respective equipment including spares or first time commissioning, whichever is later but not later than one (01) year from the date of expiry of warranty period.

29. Compliance with Laws: Vendor shall, in performing the contract, comply with all applicable laws. The vendor shall make all remittances, give all notices, pay all taxes, duties and fees, and obtain all permits, licences and approvals, as required by the laws in relation to the execution and completion of the contract and for remedying of any defects; and the Contractor shall indemnify and hold BHEL harmless against and from the consequences of any failure to do so.

30. Settlement of Disputes: Except as otherwise specifically provided in the Purchase Order, decision of BHEL shall be binding on the vendor with respect to all questions relating to the interpretation or meaning of the

terms and conditions and instructions herein before mentioned and as to the completion of supplies/work/services, other questions, claim, right, matter or things whatsoever in any way arising out of or relating to the contract, instructions, orders or these conditions or otherwise concerning the supply or the execution or failure to execute the order, whether arising during the schedule of supply/work or after the completion or abandonment thereof. Any disputes or differences among the parties shall to the extent possible be settled amicably between the parties thereto, failing which the disputed issues shall be settled through arbitration. Vendor shall continue to perform the contract, pending settlement of dispute(s).

31. Arbitration Clause in case of Contract with vendors other than Public Sector Enterprise (PSE) or a Government Department:

Arbitration & Conciliation:

The parties shall attempt to settle any disputes or difference arising out of the formation, breach, termination, validity or execution of the Contract; or, the respective rights and liabilities of the parties; or, in relation to interpretation of any provision of the Contract; or, in any manner touching upon the Contract, or in connection with this contract through friendly discussions. In case no amicable settlement can be reached between the parties through such discussions, in respect of any dispute; then, either Party may, by a notice in writing to the other Party refer such dispute or difference to the sole arbitration of an arbitrator appointed by Head of the BHEL–EDN. Such Sole Arbitrator appointed, shall conduct the arbitration in English language.

The Arbitrator shall pass a reasoned award and the award of the Arbitration shall be final and binding upon the Parties.

Subject as aforesaid, the provisions of Arbitration and Conciliation Act 1996 (India) or statutory modifications or re-enactments thereof and the rules made thereunder and for the time being in force shall apply to the arbitration proceedings under this clause. The seat of arbitration shall be Bangalore.

The cost of arbitration shall be borne as decided by the Arbitrator upon him entering the reference.

Subject to the Arbitration Clause as above, the Courts at Bangalore alone shall have exclusive jurisdiction over any matter arising out of or in connection with this Contract.

Notwithstanding the existence or any dispute or differences and/or reference for the arbitration, the parties shall proceed with and continue without hindrance the performance of its obligations under this Contract with due diligence and efficiency in a professional manner except where the Contract has been terminated by either Party in terms of this Contract.

Arbitration Clause in case of Contract with a Public Sector Enterprise (PSE) or a Government Department:

In the event of any dispute or difference relating to the interpretation and application of the provisions of the Contract, such dispute or difference shall be referred by either party for Arbitration to the Sole Arbitrator in the Department of Public Enterprises to be nominated by the Secretary to the Government of India in-charge of the Department of Public Enterprises. The Arbitration and Conciliation Act, 1996 shall not be applicable to arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any Party aggrieved by such Award may make further reference for setting aside or revision of the Award to the Law Secretary, Department of Legal Affairs, Ministry of Law and Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary or Additional Secretary when so authorized by the Law Secretary, whose decision shall bind the Parties hereto finally and conclusively. The Parties to the dispute will share equally the cost of arbitration as intimated by the Arbitrator.'

32. Applicable Laws and Jurisdiction of Courts: Prevailing Indian laws both substantive and procedural, including modifications thereto, shall govern the Contract. Subject to the conditions as aforesaid, the competent courts in Bangalore alone shall have jurisdiction to consider over any matters touching upon this contract.

33. General Terms: That any non-exercise, forbearance or omission of any of the powers conferred on BHEL and /or any of its authorities will not in any manner constitute waiver of the conditions hereto contained in these presents.

That the headings used in this agreement are for convenience of reference only.

That all notices etc., to be given under the Purchase order shall be in writing, type script or printed and if sent by registered post or by courier service to the address given in this document shall be deemed to have been served on the date when in the ordinary course, they would have been delivered to the addressee.



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PROJECT- 2 x 660 MW ENNORE SEZ

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PROJECT : 2 x 660 MW ENNORE SEZ

CUSTOMER : M/s TANGEDCO

CONSULTANT : M/s DESEIN

EQUIPMENT : LAB ITEMS- ELECTRICAL

**PREPARED BY
A.SARAVANA BABU**

**CHECKED & APPROVED BY
AMIT KUMAR SHARMA**



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REVISION HISTORY SHEET

REV No.	DATE	NATURE OF CHANGE	REASON	PREPARED BY	REVIEWED BY
00	28-03-25	FIRST ISSUE	---	SBA	AKS

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<p style="writing-mode: vertical-rl; transform: rotate(180deg);"> COPYRIGHT AND CONFIDENTIAL The information contained in this document is the property of BHARAT HEAVY ELECTRICALS LIMITED This must not be used directly or indirectly, in any manner detrimental to the interest of the company </p>		<p style="text-align: center;"><u>SECTION-A : GENERAL INSTRUCTIONS TO BIDDERS:</u></p> <p>Introduction: Bidders are required to submit technical offer for supply, installation and commissioning of Lab items (electrical) in 2 x 660 MW ENNORE SEZ Thermal Power plant. All documents against this Tender/Specification shall be submitted in English only.</p> <ol style="list-style-type: none"> 1. A list of Customer (M/s TANGEDCO) approved makes for each line item is provided in Bill of Material given later in this specification. 2. Bidder can offer any make other than approved make list given. However, such makes shall be subject to approval of M/s TANGEDCO/ DESEIN during drawing approval (after ordering). In case a make is not acceptable to customer, bidder has to be offer approved makes without any cost implication to BHEL. 3. If required during evaluation of Technical offers/bids, bidder should be present at BHEL Electronic Division, Bangalore, for discussions on 3 day's notice. Further in the event of ordering, Bidder shall accompany BHEL representative for discussions with customer / consultant at their works for approval of the system documents. 4. This specification does not prohibit any bidder to submit their offer along with clause wise deviation from the specification. Changes in technical specification / Scope / approved makes etc. shall be informed to Participating bidders only. 5. All bidders, irrespective of their existing approval with BHEL / other units of BHEL / TANGEDCO/ DESEIN , should submit all documents called in this specification. 6. Consolidated Pre-Bid queries must be sought by Bidders through email within 05days from floating the tender. 7. If a vendor does not quote for all the listed items, then his complete offer will be technically rejected. Please note that essence of this tender is packaging and hence all items within this project are to be offered so as to have one packaged vendor for this project/Projects. 8. Bidder shall be responsible for complete package supply, installation/commissioning and satisfactory demonstration and handing over to customer. Wherever OEM Representative to be deputed for commissioning bidder shall coordinate at his own cost and complete the work. Qualified technical persons shall only be deputed by the bidder for commissioning of the items in the package. 	



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SECTION-B : Pre Qualification Requirements (PQR):

1.0 Vendor should have supplied a package of Lab instruments (electrical / C&I) in any process plant/ refinery/ power plants / other large industries within last 4 years from bid submission due date of this tender.

Bidder should submit all the following documents:


1. Purchase Orders issued in name of bidder
2. In case Bill of material is not part of PO, bidder should submit other documents approved by user for ascertaining that the order was for C&I package.

2.0 Bidder should have a clean track Record, i.e the Bidder should not be under Hold or blacklist by any of the BHEL units/any Govt of india PSU/Govt of india as on bid submission date. To this effect, a declaration should be submitted by the bidder.

Note: Incomplete compliance to above PQR may result in rejection of offer of bidders. Hence, all bidders are advised to clarify their doubts on above during pre-bid stage and submit complete PQR complying documents.

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1. Bill of material having make, model and quantity of each item offered in Excel.
2. Catalogues of all the items arranged in their sequence of appearance in BOM
3. Clause/Item wise deviation list in following tabular format in Excel

Sl no of item as per tender	Item Name	Tender specification	Deviation sought	Reason for seeking deviation

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Bill of material and technical specification:

Sl no .	LAB INSTRUMENT	CUSTOMER APPROVED MAKE	Quantity(No s)
1	Electronic Test Bench	Tinsley/ Scandura -Itlay/ BEAMEX/ Isothermal Technology Pvt Ltd (ITPL).	1
2	Portable Digital Multimeter (4 ½ digit)	Tektronix / Extech / Tinsley / Eurotron / Yokogawa / Scandura/ Fluke/Agilent/ Time Electronics / ITPL	12
3	Digital Multimeter (Table MountingType)	Tinsley/ Scandura/ BEAMEX/HP(Agilent) /Tektronix/ Time Electronics / ITPL	
	5 1/2 Digit Digital Multimeter		1
	7 1/2 Digit Digital Multimeter		1
4	RCL Meter	Fluke/Philips/Scandura/Tinsley/Agilent/ WayneKerr/ITPL	1
5	In Circuit Tester	HP/Teradyne/Aicoset/Alfa/Agilent/Philips /I TPL/QMax/Estec.	1
6	Function Generator	Tektronix/HP/Tinsley/Yokogawa / Scandura/ BEAMEX/ITPL	1
7	Digital Oscilloscope	Tektronix/HP/Tinsley/Yokogawa / Scandura/ BEAMEX/ITPL	1
8	Tachometer	Biddle/Ametek/Extech/Tinsley/B&K/ITP L	2
9	Soldering Iron (10W, 25W, 40W)	Soldron/ Heko/Xytronicx	3 (1 no. of each type)
10	Solder Sucker	Soldron/ Heko/Xytronicx	2
11	Soldering Desoldering station	Soldron/ Heko/Xytronicx	2
12	Potentiometer/Rheost at 2A: (5000 Ohm) 5A: (47 Ohm) 2A: (470 Ohm) 10A: (470 Ohm) 2A: (2200 Ohm)	Tinsley/ Scandura/ BEAMEX/ITPL	2 Set
13	AC Thermometry Bridge	Tinsley (ASL)/ Scandura/ BEAMEX/Isotech/MI Canada	1no.
14	Stop Watch	EH I Eric Armin/Gralab/Casio	2
15	mV Calibrator	Scandura/Tinsley/Eurotron/Yokogawa/ BEAMEX/Time Electronics / ITPL	
	Portable		3
	Table Mounted		1
16	mA Calibrator	Scandura/Tinsley/Eurotron/Yokogawa/ BEAMEX/Time Electronics / ITPL	
	Portable		6

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COPYRIGHT AND CONFIDENTIAL The information contained in this document is the property of BHARAT HEAVY ELECTRICALS LIMITED This must not be used directly or indirectly, in any manner detrimental to the interest of the company			Table Mounted		2
		17	Thermocouple Calibrator	Scandura/Tinsley/Eurotron/Yokogawa/BEAMEX/Time Electronics / ITPL/AOIP	
			Portable		2
			Table Mounted		1
		18	RTD Calibrator	Scandura/Tinsley/Eurotron/Yokogawa/BEAMEX/Time Electronics / ITPL/AOIP	
			Portable		1
			Table Mounted		1
		19	Multi Function Calibrator	Scandura/Tinsley/Eurotron/Yokogawa/BEAMEX/Time Electronics / ITPL/AOIP	1
		20	Digital Insulation Tester	Scandura/ Tinsley/ Eurotron/ Kyaritsu/ B&K/ ITPL/ Schuetz.	2
		21	Sound Level Monitor	CIRRUS (UK)/ Tinsley/Baseline/B&K/ITPL	2
		22	Portable Digital/Analogue Vibration Meter	IRD(Rockwell)/Vibrometer/ Shinkawa/Bently/B&K/Provibtech	
			Digital Type		2
			Analog Type		1
		23	VIBRATION/ SHOCK PULSE ANALYSER cum Data Collector cum Balancer	IRD(Rockwell)/Vibrometer/ Shinkawa/Bently/Provibtech/ IMV	1
		24	Decade Resistance Box	Time Electronics / ITPL/Cropico/Eurotron Yokogawa/Siemens/ABB/Emerson	
			Analog Type		3
			Digital Type		3
		25	LAN/ Coaxial Cable Meter/ Tester	ITPL/Scandura/Beamex/RS components	2
		26	EARTH/Ground RESISTANCE TESTER	ITPL/Cropico/Scandura/Beamex	2 nose
		27	Fiber Optic Testing Tool Set	ITPL/Scandura/Beamex/RS components	2
		28	Tong Tester	Scandura/ ITPL/ Eurotron/Kyaritsu/Weschler	2
		29	Stroboscope	Biddle/Ametek/Extech/ITPL/B&K/Rishikesh / GenRed.	1 no.
		30	Auto Transformer	AE / Meco /ITPL/ Beamex / Scandura	
			Single Phase Auto Transformer		2
			Three Phase Auto Transformer		2
		31	Test Temp Dedector – Test RTD, Test K Type Thermocouple & Test T Type Thermocouple	Isotech/Scandura/Beamex/Jofra	2 No of each type
		32	Overhead projection Board (Interactive	Hitachi, Smarttech, Polyvision.	2 nos.

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	White Board)		
33	Projector with white board.	CASIO, SONY,BenQ, Panasonic, DELL	1 no.
34	Portable pH Calibrator/Simulator	Hanna Instruments/ABB/Hofmann/Eutech Instruments/Orion.	1no.
35	Logic Probe	HP/Aicoset/Alfa/Tektronix/Elenco	1 no.
36	Marker Printers	Inkcups, Laselec SA, Phoenix, Taymer.	1 nos. of each type
37	DC Regulated Power Supply	Siemens, Cosel, Phoenix, Weidmuller	4 nos.
38	Computer aided Calibration system with one no. OWS, Printer and Complete Software	Scandura, Itlay/ BEAMEX/ITPL/Time Electronics (Note-Make of OWS & printer shall be same as specified elsewhere in the specification).	1 set
39	Frequency Counter	ITPL/WAYNEKERR/Goodwill/ Beamex / Scandura / Taparia / RS components / BMP equipments / B&K	1 no.
40	Portable Conductivity Meter	Hanna Instruments/ABB/Hofmann/Eutech Instruments/Orion/Coleparmer.	1 no.
41	Vibration Pick Up tester	IRD(Rockwell)/Vibrometer/Shinkawa/Bentl y/B&K/Provibtech/IMV/Fluke.	1 no.
42	230/240 VAC Single phase stabilized supply unit	Aplab, KEPCO, Aiger.	3 nos.
43	Continuity Tester	Scandura/ ITPL/ Eurotron/Kyaritsu/Weschler	6 nos.
44	Optical time Domain reflectometer	Fluke Network, Exfo, JDSU, AFL, Anritsu, Yokogawa.	2 nos.
45	Lab Workstation with UPS, chair & table; - Color A3 laser printer cum copier with table, -Laptop		1

a) All required accessories, interfacing cables, chargeable battery, carrying case, charger, software etc. shall be provided with each lab instrument/equipment as per requirement.

b) The Bidder shall provide dual redundant interfacing for monitoring on OPC Protocol with DDCMIS.

DETAILED TECHNICAL SPECIFICATION OF ITEMS

CONTROL INSTRUMENTATION LABORATORY & TESTING EQUIPMENT

13.01.00 GENERAL REQUIREMENTS

This section sets forth the technical information required for the design, furnishing and construction of an instrumentation Lab shop, complete with tools and test equipment required to maintain the instruments and control devices for the power plant.

13.01.01 Equipments, tools and instruments

Testing instrument/devices offered shall be proven type and shall incorporate latest design.

The workmanship and design shall be in accordance with the best engineering practice and shall be such, as have proved to be suitable for the intended purpose and shall offer satisfactory performance even in the worst environmental conditions.

Testing instruments/devices shall be furnished with all necessary accessories whether specifically indicated herein or not.

- 13.01.02 i) All instruments offered, shall conform to the relevant IS or international standards.

Accuracy of the calibration instruments should be traceable to National or international standards indicating date of calibration and due date of calibration. Calibration and trace ability certificate shall be provided with the Lab instruments.

- ii) The various instruments/devices, small tools, accessories etc shall be furnished (in applicable cases) with suitable and durable boxes of convenient size, complete with necessary packing etc in order to have safe storage when not in use.

- 13.01.03 Measuring/testing instruments, along with allied accessories shall be suitable for continuous operation (both indoor and outdoor installations as applicable).

- 13.01.04 The various equipments / devices, tools, accessories etc., shall be furnished (in applicable cases) with suitable and durable boxes of convenient size, complete with necessary packing etc. in order to have safe storage when not in use.

- 13.01.05 The Bidder shall supply testing instruments/ devices, specified hereinafter, for meeting the requirement of the power plant. The Bidder shall be responsible for proper functioning of supplied items, to check and make any necessary additions/tools as required for proper maintenance and testing of the installed instruments and controls. The Bidder shall also be responsible for erection and commissioning the test equipment where applicable.

- 13.01.06 It is obligatory to the Bidder to furnish a complete list of spare parts for these testing/calibrating, instruments/devices. The Bidder shall render guarantee for easy availability of all the spare parts required, especially for the components, which are prone to failure.
- 13.01.07 The Bidder shall repair the defective instruments/devices free of cost within the guaranteed period or replace the same if required.
- 13.01.08 The Bidder shall submit with the proposal a full list of testing/maintenance equipment/tools offered. A full description and detailed specification of the items offered shall also be submitted by the Bidder for owners approval prior to purchase. Photographs, catalogues, drawings as required shall be submitted with the proposal to provide necessary information pertaining to the items offered. Information for the items offered shall include(as applicable) but not limited to the following :
- a) Working Principle
 - b) Power supply and other utility details
 - c) Dimensional details
 - d) Mounting details including necessary accessories
 - e) Recommendations (if any) for installation, storage, etc.
 - a) Accuracy (wherever applicable).
 - g) Calibration Certificates for each equipment having National/International Trace ability.
 - h) Make & Model
- 13.01.09 The maintenance and calibration equipment specified in this section shall be in addition to similar portable equipment required by the Bidder for installation and initial calibration of instrumentation and control equipment furnished by these specifications. The Bidder shall hand over to the Owner all equipment specified in this sub- section immediately after receiving the equipment at the job site. Use of these equipments by the Bidder shall not be permitted without the Owner's consent. Owner has the rights to choose/select/decide the model.
The equipment specified in this section shall be in addition to any special simulator test stands which shall be recommended and supplied by the Bidder for use in calibrating electronic components of the instrumentation and control systems to be furnished.
- 13.01.10 **Calibration Standards**
- The calibration standards shall be traceable to the National Bureau of Standards of the United States of America, comparable Indian Standards, or to applicable standards existing in the country where the equipment is manufactured and tested. The Bidder shall elaborate in the proposal the standards followed for the equipment manufacturing and testing.
- 13.01.11 Three (3) nos. teak wooden work tables with thick laminated top of size 1x2 meters, Eight (8) nos. high adjustable wheeled swivel chairs, Four (4) nos. vertical cabinets 1000 x 480 x 2000 mm made of sheet steel (Sheet thickness of 18 gauge) and

equipped with safety locks, Four (4) nos. open shelf 1000x200x2000 with partitions made of steel shall be provided in addition to Electronic & Pneumatic Lab test bench.

13.01.12 Computer Aided Calibration system offered, shall meet the demands of high precision transfer / secondary standards for automatic testing & calibration of temperature, pressure & electrical parameters in quick time and for issuance of simple, error free, reliable, fully traceable calibration certificates conforming to ISO standards / Protocol. Complete lab softwares with life time validity shall be provided by bidder, which shall be loaded on Lab operating station and Lab laptop parallelly. Any lab software mentioned or not shall be provided by bidder. Any software required for any lab instrument/equipment shall also be provided by bidder.

13.01.12.01 Computer Aided Calibration system shall have also the following facilities: -

1. Automatic Testing and Calibration:

- i) Pressure instruments like pneumatic/hydraulic pressure/ differential pressure vacuum gauges/indicators / transmitters/ switches/controllers, electro-pneumatic instruments P/I, I/P converters.
- ii) Pressure/differential/temperature/flow transmitters current/pH converters.
- iii) Analog instruments, such as indicators for pressure, current, voltage etc.
- iv) Digital panel indicators with additional port for DC current measurement.

2. Automatic testing and calibration of all types of temperature measuring instruments including temperature indicators/ recorders/controllers, thermo switches, RTD and Thermocouples of all international standards (range from - 20 Deg.C to 1200 Deg.C).

3. An automatic temperature calibration system for simultaneous calibration of multiple temperature sensors.

4. Automatic calibration and system documentation through Lab Operating station and Laptop offered with compatible calibration software.

Measuring/testing instruments, along with allied accessories shall be suitable for continuous operation (both indoor and outdoor installations as applicable).

13.01.13. Microprocessor based lab instruments shall be offered wherever applicable. All the microprocessor based maintenance and calibration units should also have provision for data logging facility for keeping calibration/maintenance record with proper communication facility to down load these data on the lab WORK STATIONS.

The Bidder shall supply testing instruments/ devices, specified hereinafter, for meeting the requirement of the power plant. The Bidder shall be responsible for proper functioning of supplied items, to check and make any necessary additions/tools as required for proper maintenance and testing of the installed

instruments and controls. The Bidder shall also be responsible for erection and commissioning the test equipment where applicable.

It is obligatory to the Bidder to provide mandatory spare parts for these testing/calibrating, instruments/devices as approved by Owner. The Bidder shall render guarantee for easy availability of all the spare parts required,

- 13.01.14. All the calibration instruments shall have a common WORK STATIONS along with A3/A4 sized B/W Digital Laser jet printer cum Copier for calibration and report generation. One no. lab laptop shall also be provided by bidder. Specification for WORK STATIONS, Laptop and Printer shall be same as specified elsewhere in the specification.

All the calibration instruments shall be provided with RS232C port for Lab WORK STATIONS & laptop interface with their own interfacing cables & software.

All the portable type lab instruments shall be provided with own rechargeable battery & charger.

13.01.15 **Instrument Work Shop**

The scope shall include the arrangement and installation of instrument workshop equipment supply and connection of all electric power supply including air distribution system.

13.01.15.01 **Electronic Test Bench**

Self-contained test bench made of anodised aluminum for testing and repair of electronic instruments and gadgets shall be furnished. The test bench shall be of modular design, enabling easy change of arrangement/ layout as and when required. This snail Include necessary isolating switches, power supply switches, holding brackets, etc. Test bench shall be furnished with thick laminated top. Desk with drawers shall be included.

The test bench shall include necessary power modules from reputed manufacturers to feed the following sockets mounted on the test bench (Voltage rating is tentative and shall be matched to supply requirements of Bidder's range of products):

Sno.	Items	Qty
i.	3 pin socket, 240VAC, 4A low-voltage output, earth leakage circuit breaker etc. for whole workstation	1
ii.	240V AC $\pm 0.5\%$, 1 phase, 50 Hz, 3 kVA supply socket, circuit breaker, as an Isolated supply module	6
iii.	110 V AC, 10 Amp. 50Hz supply socket & 0-260V AC, 1ph, 50Hz (Variac), 10amps with Digital meter for current and voltage	1 no. each
iv.	Voltage stabilizer 240(+/-0.5%) VAC, 1ph, 50Hz, 3KVA	4
v.	+/-48V DC, 3A with Digital meter for current and	2

Sno.	Items	Qty
	voltage	
vi.	+/-24V DC, 6A with Digital meter for current and voltage	2
vii.	+/-12V DC, 10A with Digital meter for current and voltage	2
viii.	+/- 5V DC, 20A with Digital meter for current and voltage	2
ix.	0-220V DC (variable) stabilized output 1 Amp No load to full load regulation shall be +/-0.2% or better with Digital meter for current and voltage	1
x.	Plant UPS power point/sockets.	2

The test bench shall include socket holders where the electronic gadgets under test may be plugged. The front equipment shall include multipoint connectors and test jacks for interconnection. There shall be connection between the connector and holder in which device under test shall be plugged in. All power points must be labeled. Electronic test bench should have instrument earth tapping points. 2 nos. Air guns shall be provided for cleaning the instrument in test bench tools.

Power cable with necessary sizing shall be supplied & laid by bidder from UPS ACDB1 and UPS ACDB2 to C&I lab at a centralized location in C&I lab and from there the required distribution board with UPS feeders including 20 % spare feeders shall be provided for distribution purpose inside the laboratory. Required MCB's & fuses shall be provided at distribution board.

3 phase, 415 VAC power supply with proper distribution board for electric actuator motor testing should be available in the lab by bidder. Also three (3) nos. of tables shall be offered by bidder with required regulated 24 VDC power supply socket for testing of transmitters on these tables.

Complete cables required for power supply in lab shall be in bidder scope of supply.

All external power supply points shall be located at a centralised location in lab room.

The standard high accuracy resistors shall be included to load and measure the current output of devices. Necessary control devices for voltage and current adjustments/ control switches for power supplies to feeders, isolation etc., shall be included. All electric circuits shall be protected against overload by fuses, whose holders are located on front of the panel. All electrical circuits and metal structures shall be properly grounded.

The following facilities shall also be provided on the electronic test bench:

- a) One DC voltage stabilizer - Regulation +/-0.02% for (0 to 220V, 1 Amp) 0-100% load variation.
- b) One AC voltage stabilizer - Regulation +/-0.5% for (input 240V AC nominal, output 240V AC +/-0.5%) . 0- 100% load variation
- c) One no. 4 1/2 digits digital - Accuracy 0.1 +/- 1 digit

Multimeter for display of voltage, current, resistance and having at least 24 measuring ranges

d) Standard Current Source (0-55mA)

13.01.15.02 Pneumatic Test Bench

Pneumatic test bench made of anodised aluminum, modular in design, enabling easy change of arrangement / layout as and when required, shall be provided. Test bench shall be complete with industrial grade oil free air compressor or alternatively shall get the Instruments air from Plant Instrument Air compressor, shut OFF valves, air filter cum pressure regulators, and pressure gauges for testing E/P converters, controllers, power cylinders, control valves etc.

The test bench shall have digital pressure indicator having range vacuum to 20000 mm WG and accuracy $0.1 \pm 0.05\%$ F.S. and a built-in selector for read-out in five engineering units i.e. Kg/Sq.cm, PSI, mmwcl, bar, mmHg. Complete with control plate with mimic panel incorporating three precision pressure regulators, filter reducing unit for the air supply, three 150 mm dial pressure gauges shall have ranges 0-2, 0-4 & 0-10 kg/cm² respectively and accuracy of $\pm 0.25\%$ F.S. or better.

The test bench shall also include the following:

Sno.	Items	Qty
i.	DC voltage power pack (220V)	1
ii.	DC voltage stabilizer 0-60V	1
iii.	4½ digit digital multimeter (Accuracy :0.1%)	1
iv.	0 - 260 V AC socket	1
v.	220 V DC socket	1
vi.	0 - 60 V DC socket	1
vii.	Current source (0 - 55 mA)	1

The standard high accuracy resistors shall be included to load and measure the current output of devices. Necessary control devices for voltage and current adjustments control, switches for power supplies to feeders, isolation etc., shall be Included. All electric circuits shall be protected against overload by fuses, whose holders are located on front of the panel. All electrical Circuits and metal structures shall be properly grounded. Pneumatic test bench should have instrument earth tapping points.

The test bench shall be complete with overload protection valve, precision pressure regulators, filter reducing unit for the air supply and all necessary accessories Including 1 set supports for instrument under test, desk with drawers etc.

13.01.15.03 Each workbench suitable for Electronic Work and pneumatic work with wood top approximate size 75 x 300 cms. with side drawers (fitted with lock) and board on back of the bench top with electric fittings. Each workbench shall be fitted with all essential tools as described under for electronic workbench and for pneumatic work bench. Each bench shall also be fitted with electrical fittings - sockets and colour

coded banana jacks for each kind of voltage used in the power station control system and one 20-watt fluorescent lamp at each table.

13.01.16 The instrument lab room shall be air-conditioned and the size shall be 14 x 7 sq. m.

The instrument lab shall have glass partitioned cabins for lab in-charge and testers separately along with furniture's.

The instrument lab shall be provided with necessary cub-boards for storing instruments and documents.

One no. 2 sided Folding Aluminium ladder (height 180 cm or better) for maintenance and mounting bracket for ladder shall be provided by bidder in each C&I lab room.

13.02.00 Technical Specification for Laboratory Instruments

1. Portable Calibrator for Vacuum

Range	:	- 14.2 to 0 psi
Accuracy	:	$\pm 0.025\%$ FS
Display	:	7 segment LCD with 4 1/2 digit
mA Input	:	4-20 mA
Power supply	:	Chargeable Battery
Accessories	:	Charger/Adapter Test Leads Carrying Case Manual

2. Portable Digital Multimeter

Portable digital multimeters, with high voltage grade leads/probes and suitable casing including carrying strap are envisaged. Digital multimeter shall have 4 1/2 digits read out indicator with automatic decimal point and polarity indicator. Indication shall be in seven segment LCD display. Meters shall be complete with accessories for high voltage, DC current, temperature, Capacitance and frequency measurements.

Instruments offered, shall have built in overload protection feature. These shall have high resolution and low response time. For AC signals (True RMS) digital multimeter shall have good fidelity over a large range of frequencies. Signals and ranges required to be measured by the meter are furnished in a tabular form below :-

Sl.No.	Signal type	Range	Accuracy
i.	DC voltage	100 mV	+/- 0.3% +1 digit or better
		1 V	-do-
		10 V	-do-
		100 V	-do-
		500 V	-do-
		1000V	-do-

ii.	AC voltage	Same as DC voltage	+/-0.5% of reading + 2 Digits or better
iii.	Direct Current	200 micro amp.	+/-0.75 % of reading + 2 Digits or better
		1 mA	-do-
		10 mA	-do-
		100 mA	-do-
		1 A	-do-
		10A	-do-
iv.	Alternating Current	Same as Direct Current	+/-1.0% of reading or better
v.	Resistance	0.1 K ohm	+/- 0.5% of reading + 2 digit
		1 K ohm	-do-
		10 K ohm	-do-
		100 K ohm	-do-
		1 M ohm	-do-
		10 M ohm	-do-

- vi Input resistance 10 Meg ohms
- vii Ambient temp. 0-50 deg.C
- viii Ambient Temp. $\pm 0.1\%$ of reading error from 0-50 deg.C
- ix. One red indication lamp shall indicate the overload.
- x. Handheld
- xi. IEC CAT III 600V Safety rating.
- xii. Drop protected to 1 meter
- xiii. Easy access battery door to change the battery without breaking the calibration seal.
- xiv. Accessories : Test leads per mutimeter
One set of spare test leads per mutimeter
Rechargeable Alkaline battery per mutimeter
Software & hardware for interfacing per multimeter.

3. Digital Multimeter (Table Mounting Type)

High standard multimeters are envisaged for the instrument shop. The multimeters shall offer simplicity in operation. The multimeters shall have a built in automatic overload protection. The meter shall offer ease and simplicity in operation to render the instrument in use after overload protection being operated. The instrument shall offer a good fidelity over a large range of frequency. Temperature compensation shall be built in.

The components inside the instrument shall be impervious to moisture. The multimeters shall be complete with suitable cover.

Each multimeter shall include two (2) high voltage grade loads which shall be interchangeable. Spare loads/probes with clips shall be supplied with multimeter. Voltage multiplier, high and low resistance range extension unit with suitable replaceable battery may be offered. Ranges and accuracy of the multimeters shall be as per the table below: -

i. For 7 1/2 digit multimeter

SI No.	Signal type	Ranges	Accuracy
i. 1.	DC voltage	3 mV to 1KV	Upto 0.004% of reading + 0.0035% of f.s.
	AC voltage	3 mV to 750V	0.05 %rdg + 0.02% f.s. between 10Hz to
2.	Alternating current	3 Micro amps to 10 Amps	0.25% without shunt(Upto 10khz)
3.	Direct current	-do-	+/-0.13%
4.	Resistance	30 mOhms to 1 G ohms	Upto 3% of rdg+ 0.001% of full scale

ii. For 5 1/2 digit multimeter

SI No.	Signal type	Ranges	Accuracy
ii. 1.	DC voltage	100mV to 1000V	+/- 0.025%
	AC voltage	100 mV to 750 V	+/- 0.025%
2.	Alternating current	1 mA to 10 A	+/-0.2%
3.	Direct current	-do-	+/-0.01%
4.	Resistance	100 Ohms to 100 Mohms	+/-0.003%

iii. Other functions:

Power supply : 240V single phase
 Display : 5 ½ digit, 7 ½ digit
 Resolution : 10 Micro Volts
 Auto/Manual ranging facility.

Meters shall be complete with accessories for high voltage, DC current, temperature, Capacitance and frequency measurements.

iv. SPECIAL FEATURES:

Self test Mode
 Diode/Zener Test
 Max/Min functions
 Continuity Testing
 A.C./D.C. Coupled facility
 Countdown and sample beep on long filter periods
 Oxygen free copper input terminals

v. Accessories : Test leads per mutimeter

One set of spare test leads per multimeter

Rechargeable Alkaline battery per multimeter

Software & hardware for interfacing per
multimeter.

10.

RCL Meter

The instrument shall be microprocessor based and programmable with front keyboard operation. Test frequency shall be 3 M Hz. Accuracy shall be of 0.05%. The instrument shall have a digital indication of inductance. Capacitance, resistance, impedance, phase angle, Q factor, admittance and Reactance etc. value with auto ranging facility.

Type of Measurements	Ranges
Resistance	10 Ohms to 10 M Ohms in seven full scale ranges with least count 10 m Ohms in 10 Ohms range.
Capacitance	1000 PF to 1000 micro F in seven full scale ranges with least count of 1 PF in 1000 PF range.
Inductance	1000 micro H to 1000 H in seven full scale ranges with least count of 1 micro H in 1000 micro H range

The final ranges shall be as decided during detailed engineering and subject to Owner's approval.

RCL meter shall be supplied complete with probes, leads, clips, connectors, power supply cords, & other accessories etc.

11.

In Circuit Tester

This shall be provided for functional testing & various types of ICS used in different electronic modules. It shall also be possible to functionally test various industry standard ICs. Proven test methods, like signature / V-I trace methods shall be used. Suitable PC (as per latest trends) with SVGA colour monitor 19" LED monitor shall be provided along with the necessary software for achieving the same. The testing shall be possible both in In circuit and Out circuit modes The system shall be complete including all necessary hardware, Software, Cabling, Power packs etc.

12.

Function Generator

- Operational Mode : Continuous, Triggered, Gated, Burst mode
- Frequency range : 0.002 Hz – 80 M Hz
- Waveforms : Sine, Triangle, square, Negative square.

Amplitude	: 100 mV to 20 V p-p (into open circuit) 50 mV to 10 V p-p (into 50 ohms)
Frequency accuracy	: $\pm 1\%$
Sine wave distortion	: less than 0.5%
Frequency stability	: $\leq 0.05\%$ for 10 min. $\leq 0.1\%$ for 1 hr. $\leq 0.5\%$ for 24 hrs.
Power	: 110V AC / 240V AC / 24V DC

13. Dual Beam storage type Digital Oscilloscope

Dual beam storage type oscilloscopes with color LCD display shall be supplied for the instrument shop. It shall incorporate latest state of art in design. Low watt dissipation and light weight shall be preferred. Simple direct reading controls arranged functionally shall be there in the front of the cabinet. Positive and negative triggering circuit selection shall be done easily by a selector switch. Auto range, auto set menu, automatic wave form measurement, shall be inbuilt features. Intensity/brightness shall be controlled from the front. Oscilloscope shall have a bandwidth from DC to 200 MHz (minimum). The oscilloscope shall have a minimum sensitivity of 2 mV/div.

Time Base

Sweep rate	: 5 nano seconds/div.
Raise time	: 3.5 nano seconds
Accuracy	: $\pm 5\%$ or better
Power supply	: 240V, 1 pH, 50 Hz

Horizontal Amplifier

Input impedance	: 1 M ohms (min.)
Band width	: DC to 200 MHz
Operating Station	: 8 x 10 cm, P31 phosphor operating station with 0.45 cm/division
Display modes	: Coloured display with Nonstore, bistable, variable persistence, fast bistable, Fast variable persistence
Calibration	: Rectangular wave for calibration and probe adjustment
Accessories	: a. One trolley with one lower rack is Envisaged for Carrying the OPERATING STATION from one point to other. b. High voltage grade, probe with suitable screening etc. Software & hardware for interfacing.

14. Tachometer

Digital Tachometer with contact and optical measurement facility in single instrument shall be supplied. Tachometer shall have measurement unit selection facility for rotational and linear velocity measurement and the same shall also be displayed. This instrument shall be offered with contact and non-contact pickup tips.

Following requirements as a minimum shall be fulfilled:

- a) Range:
 - i) Optical mode : 10 to 99,999 rpm
 - ii) Contact mode : 10 to 20,000 rpm
 - iii) Linear mode : 1 cm/sec. to 1000 m/min.
- b) Accuracy : $\pm 0.01\%$ of indicated reading for optical mode & $\pm 0.05\%$ of indicated reading for contact & linear mode
- c) Display : 5 digit LCD for measurement+ Measuring unit
- d) Sampling rate : 0.5/1.0 second
- e) Operational Mode : Sample
 - Hold
 - Lock
- f) Operating temp. : 0-50°C range
- g) Power supply : Built in 9.0 volts Rechargeable battery
- h) Accessories : Carrying case
 - One set of spare battery with
 - Chargers Tripod & adopter
 - Contact adapter, surface-speed wheel, convex and concave tips, reflective tapes, battery carrying case, etc.

15. Soldering iron

Use & performance : Electronic soldering iron specially engineered for long Lasting heavy duty and production line use fast heat up and quick recovery timing efficient heat transfer assure steady tip temperature and superior performance. All micro-electronics soldering application. Low current leakage and infinite heat insulation of element eliminates risk and damage to transistor integrated ckt and other electronic components and assure the safety of the operator.

Wattage & Qty. : 10 Watts - 1
25 Watts - 1
40 Watts - 1

Supply voltage : 230V, 50 Hz

Accessory : Soldering iron stand

16. **Solder Sucker**

Solder sucker shall be provided for removal of molten solder from terminal connections.

17. **Soldering Desoldering station**

The soldering! desoldering station shall have the following features:

Two adjustable temperature controllers with maximum setting of 430 deg C (for soldering purpose) and maximum setting of 385 deg C (for desoldering cum sucking purpose)

Digital displays for the temperature settings and actual temperatures (A common display unit with provision for selection of settings or actual temperature may be provided.)

Vacuum pump with analog gauge meter having range of -1 bar to 0 bar.

All required accessories like soldering! Desoldering attachments. Soldering bits of various sizes, magnifying glass etc. shall be provided.

18. **Potentiometer/Rheostat**

Wire wound continuously variable rheostat/potentiometer shall be provided. Sliding part & brush shall be rated to withstand the current flowing. Insulation resistance shall be more than 5 M ohms at 500 V DC between the terminal and case.

Quantity : 2A : 2 Nos. (5000 Ω)
5A : 2 No. (47 Ω)
2A : 2 No.. (470 Ω)
10A: 2 No. (470 Ω)
2A : 2 No. (2200 Ω)

19. **AC Thermometry Bridge**

Accuracy : ± 0.001 $^{\circ}\text{C}$

Resolution : 0.0001 $^{\circ}\text{C}$

Range : - 200 to 800 $^{\circ}\text{C}$

Display : 7 1/2 digit

Sensor : To support 0.25 ohm to 1000 ohms PRT.

Interface : RS232, galvanically isolated with Software & hardware for interfacing.

Power : 230V AC 50/60 Hz

Accessories : As required for System

22. **Stop Watch**

Type : Handheld, non- magnetic bevelled movement
with two hands

Resolution : 1/5 seconds

Range : 30 minutes

Display : Analog & Digital both

27. **mV Calibrator**

This instrument shall provide an accurate and reliable measure of millivolt thermocouple signals and shall generate millivolt signals for calibration of receiver type instrumentation. The instrument will contain built in electronic null detector and standard cell. Manual/automatic reference junction compensation shall be provided for thermocouple measurements. The instruments shall meet or exceed the following requirements:

Input range – selectable	: 0 – 10 mV DC 0 – 200 mV DC
Output range – selectable	: 0 – 10 mV DC 0 – 200 mV DC
Protection	: 0 – 200 mV DC
Accuracy	: 0.05% for 100% range
Ambient temperature	: 0 – 50°C
Ambient temperature error	: 0.02% of span from 0 – 50°C

28. **mA Calibrator**

This instrument shall provide an accurate and reliable measure of milliamp signals for use in calibrating receiver type instrumentation. The instrument shall be powered by a self-contained rechargeable battery pack and shall include a battery charging circuit which operates automatically when the instrument is connected to a 240V AC supply. The instrument shall be designed to operate from a 240V AC, 50 Hz supply with the battery pack removed. The instrument shall meet or exceed the following requirements (Source can be in unit or through external instrument)

Input range – selectable	: 0 – 10 mA 0 – 100 mA
Output Range – selectable	: 0 – 10 mA 0 – 100 mA
Protection	: 100% range
Accuracy	: 0.02% of selected span
Ambient temperature	: 0 – 50°C
Ambient temp. error	: 0.05% of span

29. **Thermocouple Calibrator**

Thermocouple calibrator shall be capable to accept all types of thermocouples (type J,K,T,E,R&S). Calibrator shall be digital LCD display and shall operate from built in battery source. This shall be capable of both measurement and calibration mode of operation. Cold junction compensation shall be built in

Accuracy	: Measure : 0.5deg C for K Type T/C between (-)150 to 750 deg C; 1.0deg C for R/S Type T/C between 400 to 1750 deg C; 0.4deg C for T Type T/C between 0 to 400 deg C;
Simulation	: 0.4deg C for K Type T/C between 190

	to 1250 deg C; 0.4deg C for R/S Type T/C between (-)50 to 800 deg C; 0.5deg C for T Type T/C between 150 to 400 deg C;
Ambient temperature	: 50°C (max.)
Temperature effect	: 0.01% per degree C or better
Power supply	: 240V AC 50Hz with built in Rechargeable battery for field operation
Voltage protection	: Equipment shall be protected against external voltage upto \pm 110V DC
Accessories	: i. Carrying case ii. Connector leads iii. Extension cable iv. calibration certificate v. Battery with charger vi. Instruction manual

30. **RTD Calibrator**

RTD calibrator shall be capable to accept 2, 3 & 4 wire platinum resistance thermometers of 100 ohms and copper resistance thermometer of 53 ohms. Calibrator shall be digital LCD display and shall operate from built in battery source. This shall be capable of both measurement and calibration mode of operation.

Accuracy	: \pm 0.25% of full scale \pm 0.05°C or better
Ambient temperature	: 50°C (max.)
Temperature effect	: 0.01% per degree C or better
Power supply	: 240V AC 50Hz with built in chargeable battery for field Operation
Voltage protection	: Equipment shall be protected against external voltage upto \pm 110V DC
Accessories	: i. Carrying case ii. Connector leads iii. Extension cable iv. calibration certificate v. Battery vi. Instruction manual

Over range protection : 20 percent of span
 Pressure sensing element : Capacitive transducer
 Display
 - Type : LCD
 - Digit : 5

Function : Display for actual value and percentage error.
 Other functions : 1. 24V DC supply for two wire transmitter
 2. Contact monitoring for switch devices
 3. Capability to read negative pressures upto (-) 0.8 kg/cm²

Power supply : 240V AC, 50 Hz with rechargeable Ni-cd batteries
 Operating temp. : 60 deg.C
 Pressure connection : 1/8 and 1/4 inch BSP and NPT

Accessories : 1. Calibration pressure pump
 2. Current output modules
 3. Instruction Manuals
 4. Carrying case

Application : Calibration of pressure/diff.pr. transmitters, pressure switches and converters etc.

32. **Vacuum Calibrator**

Range : - 12 to 0 psi
 Accuracy : $\pm 0.025\%$ FS
 Display : LCD Seven Segment
 mA Input : 4-20 mA
 Power supply : 9V Alkaline Battery
 Accessories : Charger/Adapter
 Calibration Vacuum Pump
 Test Leads
 Carrying Case
 Manual

33. **Multi Function Calibrator**

The portable unit is intent to measure electronic transmitters, RTD's, Thermocouples and act as a source for calibration of secondary instruments and system inputs. The instrument shall be digital LCD display and shall display simultaneously both input measured value and output signal. Multi meter shall be small stream lined shape, MAKES IT EASY TO CARRY. It shall be rugged, reliable design stand up to field use. It will be easy to read measure/source screen and view input and output simultaneously.

Data entry shall be through numeric entry function keys. Instrument shall have built in diagnostic and auto calibration facilities & shall also be capable

of measuring voltage, current, thermocouples, RTD's & frequency and stimulation of corresponding primaries including two wire transmitters.

Accuracy	: $\pm 0.025\%$ typical
Thermocouple	: Type J,K,T,E,R&S
RTD	: Pt-100 Ohms
Volts	: 0-10V, Resolution 0.2 mV
Millivolts	: -10-120 mV, Resolution 2 Microvolts
Current	: -5-60m Amp Resolution 1 micro amp.
Ohms	: 0-4000 Ohms
Frequency	: 120-50 KHZ
Power supply	: 240V, AC 50 Hz
Common Mode rejection	: 80 db at 60 Hz or better
Normal mode rejection:	40 db at 60 Hz or better
Linearity	: ± 0.005 percent of span
Repeatability	: ± 0.005 percent of span
Ambient temp.effect	: ± 0.005 percent/deg.C
Long term stability non-cumulative	: ± 0.00025 percent/100 hr
Ambient temperature	: 50 deg.C
Input protection	: Upto 140V DC
Input/output isolation	: 300V DC, 50 M Ohm

Calibrator shall be furnished with RTD simulation facility, external charged battery pack, test leads, set of fuses, instruction manual. In addition one set of spare battery pack as well as charger for spare battery pack shall be supplied with each instrument.

35. Digital Insulation Tester

Measurement	-	up to 100 Mega ohm at 500 V
Accuracy	-	0.5% of reading over the range

36. Sound Level Monitor (Type I)

Sound level range	:	50-100 dB, 80 to 130 dB
Resolution	:	0.01 inches/sec.
Frequency Range	:	20 Hz – 8 KHz
Vibration Meter Range:		0.05 to 3.93 inches/sec. At 10 – 1000 Hz
Display	:	LCD Digital Type
Accessories	:	Rechargeable Batteries, Software, interfacing cables & Ports

39. **Portable Analogue & Digital Vibration Meter**

This instrument shall measure vibration of machinery in terms of displacement, velocity and acceleration. Power supply shall be by self contained replaceable batteries.

Displacement Range : 0 to 3000 microns peak to peak.

Velocity range : 0 to 3000 mm/sec.

Acceleration range : 0 to 100 g's.

The instrument shall be furnished complete with vibration pick-up, straight probe. Carrying case and one meter cord for connecting pick-up to meter. Vibration Meter shall be of digital and analogue type separately. One extra cable of 10 meter long connecting the sensor & Electronic unit to take vibration measurements of vertical pumps to be supplied.

Note: Analogue meter is used to find out any vibration due to electrical problem in the motor by measuring the transient vibration.

40. **VIBRATION/ SHOCK PULSE ANALYSER cum Data Collector cum Balancer**

Frequency Range : DC and 21 cpm (0.36 Hz) to 1,500,000 cpm
(25K Hz)

Acceleration Input : 21 to 1,500,000 cpm
120 to 1,500,000 cpm

Velocity Input : 21 to 1,500,000 cpm
120 to 1,500,000 cpm

Displacement Input : 21 to 1,500,000 cpm
1500 to 1,500,000 cpm
120 to 1,500,000 cpm

Voltage Input : 30 V DC (Aux. 2 I/P)
5 V DC (Aux. 1 I/P)

Power : 6 volt, 2.4 A hr rechargeable battery
Min. operating time - 6.5 hrs.

Environment : Operating temp. Range -18°C to 60°C
Relative Humidity : 0-95% non condensing
Splash: Resistant, sealed case

Output : RS 232 C port with HART for communication to
115,200 baud.

Accessories	: As required with complete software.
Application	: Analyzing bearing condition, measuring machine vibration & checking of rotational speed.
Type of Measurement	: Acceleration, Velocity, Displacement, Phase, FFT, CPB, HFD spectrum, Temperature, Thrust, Axial position etc. with auto ranging in RMS, peak to peak, bearing fault analysis feature, balancing kit for in situ dynamic balancing and required software for 1 plane, 2 plane balancing, route generation and maintenance facility with off route data collection and analysis.
Averaging Type	: Linear, Exponential, Peak Hold

41. **Decade Resistance Box**

This should be three nos. analog type decade resistance box with resistance range of 1 ohm to 1.2M ohm, $\pm 1\%$ accuracy, all resistors rated to 0.75W, and shall use stable metal film resistors with complete electrostatic screening. This shall be supplied with certificate traceable to National /International Standards.

This shall be two nos. digital type decade resistance box with resistance range of 1 ohm to 1.2M ohm, $\pm 0.05\%$ accuracy.

One no. digital type variable Decade resistance Box, shall be provided as an accurate resistance source for calibration of RTD elements and receiver devices. The range shall be 0-100 ohm with increments of 0.001 ohm. Accuracy shall be $\pm 0.05\%$ or better.

42. **LAN/ Coaxial Cable Meter/ Tester**

This portable unit is used to check the quality of cable and test and troubleshoot coaxial and twisted pair cable in Local Area Network (LAN) installations. It shall be powered by standard AA alkaline battery allowing minimum 8 hour of operation. The cable meter shall meet the following requirement as minimum.

- (a) Display : Backlit LCD Display for observing result in sheet dark environment and emit audible tone to assist in pass/fail indication.
 - (b) Test Standard : IEEE-802 & EIA/TIA 568
 - (c) Range : For unshielded twisted pair (UTP) - 6 to 600 m
- For shielded twisted pair (STP) - 6 to 600 m

		For Coaxial cable - 6 to 1200 m
(d)	Accuracy	: 6 m to 60 m - ± 0.6 m
		60 m to 1200 mm - $\pm 1\%$
(e)	Resolution	: 1 m
(f)	Storage	: allows storage of 400 complete test results for printing
(g)	Near end cross talk (Next TP only)	: 0 to 50 db
(h)	Characteristics impedance range with accuracy of ± 10 W	: TP Cable 75 W - 180 W Coaxial - 40 W - 120 W
(i)	Accessories	: Carry case, printer cable, battery & instruction manual.
	Quantity	: 2

43. **Portable Ultrasonic Flow meter**

This ultrasonic flow meter is used for non-intrusive flow measurement, indication, totalizing and transmitting of the flow in a full pipe.

Sensors	:	Dual transmitting / Receiving clamp-on, for pipes of size 50 mm to 1000 mm and other pipe size as available in subject plant.
Power	:	Built-in rechargeable battery and external charger
Data Storage	:	Internal data logger (which can be downloaded to a WORK STATIONS later.
Measuring Range	:	0 to + 0.3 to + 32 m/s
Accuracy	:	$\pm 1.0\%$ of rate
Response	:	1 second
Temperature	:	- 50 deg.C to 250 deg.C
Communication	:	RS323C Interface
Display	:	Graphic LCD, Flow in m3/Hr. Velocity in m/sec.
Totaliser	:	12 digit
Analog input	:	4-20 mA
Analog output	:	4-20 mA
Battery	:	Usable continuously for 5 hours (min.)
Printer	:	Fixed – internal automatic printout of Measured data
Accessories	:	Carrying case, power Adapter, converter, paper roll, SS Fastening belt, Propagation medium gel.

44. **EARTH RESISTANCE TESTER**

The unit should meet safety requirements as per IEC61010-1:1990 and feature:-

- i. It shall be able to measure earth resistance of various earth installations and the resistance of low resistance conductor.
- ii. Suitable to test earth resistivity and earth voltage.
- iii. 3 1/2 LCD Digital Display
- iv. It shall be able to operate with the minimum influence from earth voltage.
- v. Low power consumption and powered by batteries.
- vi. Low batteries indication.
- vii. If the testing current has no return loop or the resistance value of auxiliary resistance exceeds the upper limitation, a display indication shall be available
- viii. Dust-proof and damp-proof construction suited for outdoor use.
- ix. The unit shall be supplied complete with test leads (red, yellow, green, black - each 1.5m), Two bars, Test wires (20m & 40m), Instruction Manual, Carry-case, Screw driver and other accessories as required.
- x. Earth Resistance Test
 - a. Measuring Ranges : 0.00 to 19.99 Ω , 20.0 to 199.9 Ω and 200~1999 Ω
 - b. Accuracy : Base Error \pm (5% of reading \pm 2d) Error from earth voltage \pm 2% ACV 50Hz \leq 5V
- xi. Earth Voltage Measurement
 - a. Measuring Ranges : 0.00 to 19.99V
 - b. Accuracy : \pm (5% of reading +2d)
 - c. Insulation Resistance : \geq 20M (500V)
 - d. Withstand Voltage : AC 1.5kV 50Hz 1min
 - e. Power Supply : 1.5V (R6 or AA) batteries/ rechargeable batteries.

48 **Fiber Optic Testing Tool Set**

- a. Source and Power Meter – Optical Loss Test set (OLTS)
- b. Reference Test Cables
- c. Fiber Tracer and Visual Fault Locator
- d. Optical Time Domain Reflectometer (OTDR)
- e. Cleaning material like Lint free Cleaning wipes.
- f. Optical Fibre Cable Joining Kit.

52 Stroboscope

Power Supply	:	240 V AC 50 Hz supply
Display	:	4 ¹ / ₂ Digital LCD
Accuracy	:	±0.1%
Low range	:	100-1000 rpm.
High range	:	100-10000 rpm.
Sampling line	:	1 sec or better
Flash tube	:	Xenon lamp with Flash color white 6500K. with automatic flash control
Accessories	:	Adopter, Rechargeable Batteries, Charger, case etc.

53 Auto Transformer

Max. input voltage	:	250V, AC 50Hz, Single phase
Max. output voltage	:	0-112%, Single Phase
Rated current	:	20 Amp., Single Phase
Max. input voltage	:	415V, AC
Max. output voltage	:	470 V AC, Three Phase
Rated current :	:	10 Amp., Three Phase
Insulation resistance	:	Greater than 5 M ohm at 500 VDC
High voltage test	:	1.5 KV
Feature	:	Voltage scale around the voltage varying knob of auto transformer shall have white lettering and graduation as black back ground.

54 Test Temperature Detector**1. TEST RTD**

Sensor type	:	Platinum resistance element, Three/Four wire type
Outer Sheath material	:-	Ultra High Purity Quartz/Alumina
Minimum Diameter	-	6 - 7.5 mm
Minimum Length	-	>20 inches
Accuracy/Stability	-	0.03 °C
Temperature range	-	0-1000 °C
Accessories	-	Connecting cable, carrying case.

2. Test K Type Thermocouple (Industrial Grade)

Sensor Type	-	Type K – NiCr-NiAl, Mineral insulate T/C with Pot seal
Sheath Material	-	Inconel 600
Sheath Dimensions	-	1.5 mm dia x 300 mm long
Temperature range	-	0-1100 °C
Accuracy/Uncertainty	-	1.1 ° C
Calibration Certificate	-	To be provided from accredited LAB
Accessories	-	Connecting cable, extension wire, carrying case.

3. Test T Type Thermocouple (Industrial Grade)

Sensor Type	-	Type T – Cu-CuNi, Mineral insulate T/C with Pot seal
Sheath Material	-	321SS
Sheath Dimensions	-	3.0 mm dia x 500 mm long
Temperature range	-	0-500 °C
Uncertainty	-	0.5 ° C
Calibration Certificate	-	To be provided from accredited LAB
Accessories	-	Connecting cable, extension wire, carrying case.
Type of End Seal	-	Long crimp on stainless steel pot seal epoxy resin backed
Swaged Tip	-	2.0mm (approx. 50mm long)

55. Overhead Interactive White Projection board

Two Nos. of overhead projection board (Interactive White Board) with complete accessories, software i.e one for conference room at service building & one for training room shall be provided by bidder. These boards shall act as I/O device from/to the desktop computer or laptop computer.

These Interactive white boards shall be provided with following minimum features

- a. Two (2) nos. of USB port required for interfacing with PC/Laptop.
- b. Screen size 79" or better.
- c. Hand writing recognition with multi touch function
- d. Scroll down facility with wireless facility enabled.
- e. Remote conferencing enabled
- f. Should support OS: Windows, Mac and Linux
- g. Accessories as Stylus Pens & erasor including one spare set, VGA cable, wall mount brackets etc.
- h. Minimum 1 KVA industrial grade UPS with 60 minutes Ni Cd battery backup for each overhead projection board.

56. Projector with white marker board.

One no. projector with white marker board size of 80" shall be provided by bidder for conference room at Administrative building. The projector will be have following minimum features

DLP/LCD based technology, Minimum 3000 lumens, minimum contrast ratio 400:1, uniformity of minimum 90%, with wireless adapter, USB port, with in-built speaker, able to provide Full HD view, motorized zoom & focusing, Optional lense in built for short & long throw, auto image feature depending upon input, with universal inputs like VGA, S video input, Composite video, IR, Audio, etc and Network capability.

57. Portable pH Calibrator/Simulator

To Check & calibrate the pH analysers/measuring equipments, compact portable pH simulator/calibrator with LCD digital display shall be supplied by bidder.

Range	:	0-14 pH in steps of 1 pH
Accuracy/Resolution	:	+/- 0.01 pH
Temp. Coeff.	:	0.001 pH/Deg c
Power Source	:	Built in chargeable Nicd battery with battery Check switch and indicator.
Accessories	:	Connector leads, Carrying case etc.

58. Oil Condition Monitor

Display	:	LCD Display
Memory Storage	:	Up to 100 per measurements
Output Ports	:	USB port & RS 232
Data Management	:	interfaced with external operating station/Laptop.
Printer	:	In built
Power Supply	:	90 to 230 V AC and rechargeable Battery Operated
Wetted material	:	Aluminium/SS
Accessories	:	All type of leads/cords, printer paper rolls (6 nos), Analysis & diagnostic software, water saturation bottles, sampling system, carrying case.

Operating Parameters:-

Viscosity	:	20 to 780 mm ² /s
Oil Temp.	:	0 to 70 deg C.
Protection Class	:	IP 67 (with cover closed)

Measurement Parameters:-

Automatic Particle Counting	:	8 Channels
Calibration	:	As per international Standard ISO MTD in Oil (ISO 11171)

59 Logic Probe

Logic probes shall be furnished to test the computer systems. It shall operate in pulse & normal mode. It must be capable of testing all digital logics such as CMOS, TTL; DTL etc. logic probes are envisaged to check the status of the binary logic modules. These shall be LED with current limiting resistor etc. with each of the logic probe. The LED shall glow whenever test point is touched by the probe and logic. '1' shall be present at the test point. Logic probe shall be protected from overload and shall have pulse stretching facility. Pulse repetition frequency upto 80M Hz for TTL and 40M Hz for CMOS circuits. Types of logic probe necessary shall be guided by the types of binary logic supplied by the Bidder.

60 Marker Printers:-

For Printing of silicon and halogen free labels of Polyamide, marker printers with high-speed UV hardening technology shall be provided by bidder. The printing method is based on a printhead with a LED UV Unit for hardening the fluid. The Labels printed with UV technology can withstand temperature from - 40°C to 120 °C. The Printers shall be capable of printing various types of printing suitable for Cable marking, terminal marking and equipment marking. The printer should come with software that supports all types of printing used for marking. All software shall be loaded in separate operating station.

Marker Printers with High-speed UV hardening printer shall comply standards like DIN EN ISO 1043-4, DIN EN ISO 4892-2 AND DIN EN ISO 60068, DIN EN ISO 175, DIN 50018, DIN EN ISO 2409, IEC 60947-7-1/2, IEC 60068-2-11/52 and EN 60464-2:-2001 etc.

Accessories:

- i. Terminal marker card for 5mm, 6mm, 8mm & 10 mm Pitch (250 No. Each)
- ii. Wire Marker Card for wire diameter 1.9mm, 2.1mm, 2.9mm 3.1mm 3.6mm,4.4mm, 4.9mm,5.6 mm 7.5mm and more than 7.5mm. (250 No. Each)
- iii. Equipment Marking Card with carrier (200 No.).
- iv. Ink Cartridge for Printing above material (25 Nos.)"

61. D.C. Regulated Power Supply

Bidder shall supply D.C. Regulated Power Supply designed with latest state of the art electronic and IC technology. D.C. Regulated power supply shall have the following features:

01. Voltage Range : 0 to +60V DC, 5 Amps. (Floating)
(Continuously adjustable)
02. Voltage/Current Range meters : 0-60V/0-10 A
03. Display : LCD
04. Meter Accuracy : +/- 2% FSD
05. Power Supply Connection : 240V AC, 50 Hz.
06. Output Impedance : 50 Ohm or less.
07. Load Regulation : 0.1% variation in voltage
0.2% variation in current
08. Drift in 8 Hours : 0.1% variation in voltage
0.2% variation in current
09. Ripple and Noise : Less than 1mV
10. Setting Resolution : 20mV / 20mA
11. Temperature Coefficient : 0.05% per Deg.c
12. Accessories : Test cords and clips are required.
13. Power supply shall be short circuit proof and crowbar protected.
14. Quantities : 4 nos.

68 **Frequency Counter:**

Type	:	Universal, Dual Channel
Display	:	8 digits with Hz, kHz, MHz, GHz, S, ms, μSec, nS
Range	:	0.01 Hz to 120 M Hz & 50 M Hz to 2.7 GHz

Sensitivity	:	10mV RMS typical & 50 m V RMS
Time base Stability	:	± 1 PPM
Features	:	Trigger Function Frequency ratio measurement function Time Interval measurement function External frequency standard input

69 Portable Conductivity Meter

To Check & calibrate the conductivity analysers/measuring equipments, compact portable conductivity simulator/calibrator with LCD digital display shall be supplied by bidder.

Range	:	0.001 micro siemens/cm to 1000 mS/cm
Accuracy	:	+/- 0.01 micro Siemens/cm of reading
Resolution	:	+/- 0.01 micro Siemens/cm
Temp. Coeff.	:	0.00 to 10.00 %/Deg c
Power Source	:	Built in chargeable Nicd battery with battery Check switch and indicator.
Lab OWS connectivity:		Yes
Range Mode	:	Auto mode, Fixed mode. .
Accessories	:	Connector leads, Carrying case etc.

70 VIBRATION PICK-UP TESTER

Instrument shall be suitable for testing of both non contact and seismic probes supplied by the machine monitoring instrument supplier. Shaker table to simulate the required vibration levels so as to check and validate the vibration pickups is to be supplied.

71. STABILISED POWER SUPPLY

Bidder shall supply stabilized power supply designed with latest electronics and IC technology. It shall have the following minimum features.

Voltage Range	:	0-230/240V AC, continuously adjustable.
Power supply consumption	:	240V AC, 50 Hz
Indication	:	Meters indicating voltage and current shall be integral with power supply
Load Regulation	:	0.25% variation in voltage

72. CONTINUITY TESTER

Continuity tester shall be electronic and battery operated. A hooter shall be provided which will sound when continuity detected. Tester shall be supplied with battery charger, lead wires and probes. The tester shall be kept in a carrying case.

73. Optical time Domain reflectometer

1. A recording optical time domain reflecto meter (OTDR) will be utilized to test for end-to-end continuity and attenuation of each optical fiber. The OTDR shall be equipped with data storage (1 GB internal flash memory min.), printer, help feature, compare trace features and OTDR software. The data storage unit must include a built-in memory drive capable of storing a minimum of 100 test traces. Display shall be colored 6 inch TFT minimum. OTDR shall have built in power meter & visual fault locator.

Safety Class: -Class I FDA 21 CFR 1040.10 & 1040.11, IEC 60825-1:2007-03

Test Mode: - OTDR (Full auto, Expert Real Time), Auto test, OPM, OLS, VFL, DFS (Digital Fiber scope).

Application:-

- i. Automatic Pass/Fail Analysis (TIA/ISO/EN)
 - ii. Bi directionally measure loss and length of fiber links.
 - iii. Tier 1 & Tier 2 testing of networks.
2. Data traces saved to disk shall include the following labels.
 - a. Fiber Identification (ID) with a minimum of 10 characters.
 - b. Cable ID with a minimum of 10 characters
 - c. OTDR location with a minimum of 20 characters
 - d. Far End location with a minimum of 20 characters.
 - e. Test operator initials with a minimum of 3 characters.
3. The printer shall preferable be internal. The printer shall be able to print data traces within 30 seconds or less. The machine setting used to repeat tests at a later time shall include index, range, wavelength, average time, pulse width and scale settings. The test results (on printout) shall provide information including: loss, distance, reflectance, data and time.
4. The requirements for the compare trace feature include the ability to recall two historical traces from a diskette and display them simultaneously for analysis and printing. The compare trace must compute and display a single graph representing any differences between two traces. The compare trace must be able to recall historical traces from a discrete and perform the same tests on connected live fibers. The compare trace shall perform a two point loss measurement test for any two particular fibers in a comparison analysis. The losses between the two points on the each fiber shall be displayed, and the differences between the two readings clearly shown.
5. The OTDR must be equipped with software to support all of the required functions. The software shall provide for printing of whole set

of traces (batch print) with minimal commands eliminating the time spent for printing traces individually.

6. Bidder shall provide all mounting accessories, cables and connectors required to establish data communication.
7. Power supply – Rechargeable batteries for 7 hours operation as per Telcordia (Bellcore). Universal type AC/DC Adaptor.
8. Interfaceing - USB ports, RJ-45 LAN ports, Fiber inspection probe connector port, Built in Bluetooth & wifi.
9. Accessories – Fiber inspection probe, carrying case, USB mouse, USB keyboard, gloves, cable kits, softwares.

4.03.03.04 Specifications for Operator Station, Engineering Work Stations

Each operating station & Engineering work stations and any other work stations/PC envisaged in plant shall meet following minimum requirements & as per latest trends at the time of supply:

- On board Intel – Xeon quad core, 3.46 GHz processor with 1066 MHz bus with Hyper threading or higher.
- 4GB DDR3 RAM (min.)
- 1 x 1000 GB IDE Hard Disc Drive of 7200 RPM or higher
- 1024 MB Graphic Accelerator
- System chipset: Intel Express
- 2 x RS – 232 ports
- 1 x parallel port
- 4 nos. USB ports. (2 nos. on front side)
- 1 x 52X DVD/CD Read Drive
- 16 X DVD R/W Drive
- 2 x Ethernet (10 / 100 / 1000MB) cards (Industrial Grade)
- UXGA graphics and monitor 1920 X 1080, 256 colours with MRPII compliant, viewing angle 178° vertical & Horizontal and fastest response time.
- 1 x windows XP/7 Professional or latest & proven version of Windows OS professional with Multimedia
- Ethernet adapter
- Third party operating system, graphical users interface and software, if required.
- 2 nos. graphic output crads minimum

- Optical mouse
- Sound card
- Internal speakers
- Wireless internet & Blue tooth Interface
- Redundant power supply (In built)
- General MS Windows latest, MS-Office Professional, Adobe Acrobat, anti-virus McAfee or equivalent, AutoCAD etc.
- Application engineering & HMI software - to suit project Specific requirement
- All OWS shall be interchangeable

Preferred makes of OWS/EWS/PC's are DELL, HPCOMPAQ, NEC & IBM.

4.03.03.04.01 Peripherals for Operator Station, Engineering Work Stations & Server System

4.03.03.04.02 Full flat Monitors with LED back lighting

The bidder shall furnish OWS/EWS/Servers/PC with coloured **Full flat Monitors with LED back lighting**. OWS/EWS/Servers/PC with **Monitors** shall have a fast cursor control device like a track ball/optical mouse. All **Monitors** shall be of high resolution colour graphics type and with not less than 32 colours. The picture frequency shall not exceed 85 Hz. The resolution required is 1920 X 1080 pixel or better. The picture shall be stable and completely free of any flickering. The screen illumination shall be enough to give good readability. The screen dimensions shall not be less than 24" screen diagonal.

Antiglare hard coating shall be provided. High reliability and long life 24" (Industrial type) or better size monitors shall be supplied by the bidder. **Monitors** shall be equipped with all adjusting elements accessible on the front plate. Monitors with 3D capabilities for graphics shall be provided by bidder.

Monitors along with keyboard & optical mouse shall be mounted on supervisory control console specified elsewhere in the specification.

4.03.03.04.03 Key Board:

Functional key boards for plant operator station shall be of special type adopted to operation tasks and monitor functions. It shall contain all keys necessary for plant operation arranged in an ergonomically manner. Multi function keys shall be provided with automatic display for modified functions. Freely programmable keys (Minimum 101) shall be available for special user application.

Key Board shall be integrated into supervisors control consoles horizontal part.

Provision of functional keyboard shall be in addition to facility for operator control through mouse/track ball.

Membrane type keyboard shall be provided for operator interface with process for plant control and display functions to access plant data in conjunction with control OPERATING STATIONS. Membrane keypad shall be assignable with LED alarms, dedicated display selection keys with spare provision, hardware locking facility to set OPERATING STATION in engineer, supervisor or operator mode. The keyboard

shall have a minimum of 101 configurable keys for assigning most frequently used displays. A minimum of forty of those keys shall have two independently lit LED's used for event-specific alarm annunciation.

Keyboard shall be provided to enable the shift supervisor to develop graphic displays, control system software and system configuration for the DDCMIS. It shall be possible to perform operating interface functions from engineering OPERATING STATION. Assignable function keys shall be provided for execution of command, program etc. Hardware facility shall be provided to set OPERATING STATION in engineer or operator mode. QWERTY type keyboard shall be provided for engineer's functions. QWERTY type Key Board may be offered alternatively for OWS.

4.03.03.04.04 PRINTERS

Line Impact Heavy Duty Dot Matrix Printers

All printers shall be low noise (less than 60dB) type with a minimum of 136 columns. Printing speed shall be a minimum of 300 characters per second. Since the control room printers are high-speed printers, the system shall output to these printers at the rate of 1000 lines of printout per minute as a minimum. This rate shall be independent of the number of printers in simultaneous operation. Style of printing available shall be indicated by the Bidder. The printers shall have graphic capability and any OPERATING STATION display may be printed on the printer. The printing shall be bi-directional and in two colours black and red for sequence of event recording. Paper input capacity shall be with continuous paper feed.

Printers shall accept and print all ASCII characters via an E.I.A. RS-232 C or twenty milliamp current loop interface. Parity checking shall be utilized.

All printers mounted shall be provided with a separate printer enclosure each. The enclosures shall be designed to permit full enclosure of the printers at a convenient level. Plexiglas windows shall be used to provide visual inspection of the printers and ease of reading.

Printer enclosures shall be designed to protect the printers from accidental external contact and each should be removable from hinges at the back and shall be provided with a lock at the front.

If one of the printers fails to operate, it's functions shall automatically be transferred to the other printer. Failure of the printer shall be indicated on all OPERATING STATION's. Printer shall be offered and supplied from reputed manufacturer with latest proven technology. 5 Rims of papers shall be provided by bidder for each printer provided with subject plant.

Coloured Laser Jet printer

Printing Speed	20 ppm (min.)
Resolution	1200 X 600 dpi
Memory	128 MB (min.)
External Port	1 no. USB 2.0 port, and TCP/IP 10/100 Ethernet, Blue tooth interface

Duty Cycle	40,000 pages per month
Pages size	A3, A4, and Transparency etc. with automatic duplex printing facility.

Laser Jet printer (B & W)

Printing Speed	30 ppm (min.)
Resolution	1200 X 1200 dpi
Memory	128 MB (min.)
External Port	1 no. USB 2.0 port, and TCP/IP 10/100 Ethernet, Blue tooth interface
Duty Cycle	15,000 pages per month
Pages size	A4, A3, and Transparency etc. with automatic duplex printing facility. Paper tray - 2

Ink Jet Printers (Coloured)

Printing Speed	30 ppm (min.)
Resolution	1200 X 1200 dpi
Memory	64 MB (min.)
External Port	1 no. USB 2.0 port, and TCP/IP 10/100 Ethernet, Blue tooth interface
Duty Cycle	5,000 pages per month
Pages size	A4, Transparency etc.
Duplex printing	Automatic

Five sets of print cartridges and Five rims of papers shall be provided with each printer provided anywhere in the plant by bidder with each DDCMIS, DCS & PLC system and any other system specified elsewhere in specification.

Preferred makes of printers are HP, Canon, Fuji Xerox, & Epson.

QUALITY ASSURANCE AND TESTING AND GUARANTEES

14.01.00 GENERAL REQUIREMENT

- 14.01.01** All equipment furnished under this specification shall be subject to test by authorized quality assurance personnel of the Bidder, representatives of the Owner during manufacture, erection and on completion. Bidder" quality assurance personnel for these shop and site tests shall be identified in advance and shall be acceptable to the Owner. The approval of the Owner or passing of such inspection of tests will not, however, prejudice the right of the owner to reject the equipment if it does not comply with the specifications when erected or fails to give complete satisfaction in service.
- 14.01.02** The Bidder shall furnish details of shop and site tests proposed to be conducted by him at various stages to meet the specification requirements for each type of instrument/system along with his proposal. Bidder shall also furnish details of his proposed shop and site quality assurance organization for this contract
- 14.01.03** Bidder shall prepare a detailed shop and site 'Quality Assurance Programme' to meet the requirements of these specifications for Owner's approval. This document shall also contain the formats for reports and maintenance of test records specification of test equipment to be used for site tests.
- 14.01.04** All equipment and systems furnished under this specification shall be subjected to shop & site tests in accordance with the Quality Assurance Program approved by the Owner and shall be adequate to ensure full compliance with these specification, all applicable codes & standards and detailed engineering drawings and documents approved by the Owner.
- 14.01.05** The Bidder shall provide all required test equipment and simulation devices for performing all shop and site tests. All tests equipment shall be of reputed make, required accuracy class and shall be recently calibrated. The record of calibration of test equipment shall be made available to the Owner on demand.
- 14.01.06** The cost of all tests as per the requirements of this specification and approved quality assurance programme shall be included in Bidder's lump sum price for this package and no extra price shall be payable by the Owner for conducting any test as per the intent and requirements of this specification.
- 14.01.07 All approval/Inspection are to be carried out by the Owner only.

14.02.00 SHOP TESTS

14.02.01 General Requirement

- 14.02.01.00 Shop tests shall include all tests to be carried out at Bidder's works at of this sub-bidder and at works where raw materials used for manufacture of equipment is produced.

14.02.01.01 Individual components, instruments and devices furnished in accordance with specification sheets, and I&C device list enclosed with these specifications shall be shop tested by manufacturer prior to shipment. The manufacturer shall conduct these tests for certifying compliance with published specifications for the equipment and provide test results to the Owner in writing. These tests and test certificates shall be in accordance with the agreed 'QA' programme for major systems/equipments. However, manufacturer's standard methods shall be followed if details of tests for any equipment are not covered under this agreed 'QA Programme'.

14.02.01.02 Whenever tested quality material is specified and wherever called upon by Indian Boilers Regulations or by the design code, the test pieces are to be prepared and tested to Owner's satisfaction.

14.02.01.03 In the event of Owner being furnished with certified particulars of tests, which have been carried out by the suppliers of material, the Owner may, at his discretion, dispense with these tests.

14.02.02 Material Tests

14.02.02.01 Whenever tested quality material specified and whenever called upon by Indian Boilers Regulations or by design code, the test pieces, are to be prepared and tested to Owner's satisfaction.

14.02.02.02 In the event of Owner being furnished with certified particulars of tests, which have been carried out by the suppliers of material, the Owner may, at his discretion, dispense with these tests.

14.02.03 Test at Manufacturer's Works

14.02.03.01 Works tests are to include electrical, mechanical performance and hydraulic tests in accordance with relevant IS, IBR or any other approved standard or any other tests called for by the Owner under these specifications to ensure that the equipment being supplied fulfills the requirements of these specifications. For equipments not covered by any IS or other approved standards, the tests to be carried out shall be in accordance with Bidders' quality assurance programme approved by the Owner.

14.02.03.02 Control systems, monitoring systems ,control panels instrument enclosures ,and power supply systems shall be shop tested according to unique requirements specified in the applicable section of these specifications for each item and quality assurance program approved by the owner.

14.02.03.03 All shop tests shall be performed prior to shipment and the Owner shall be given the opportunity to witness these tests. The Bidder shall notify the Owner regarding readiness for shop test at least 10 days before the scheduled date if the tests to be conducted within Indian and at least 60 days before the schedule date if the test is to be conducted abroad.

14.02.04 Factory Tests

14.02.04.01 Automatic Control and Monitoring system (DDCMIS, PLC & any other microprocessor based control system) including alarm annunciation system furnished as per this specification shall be subject to shop and site tests as per the requirements of this specification, applicable codes and Owner approved Quantity Assurance Program so as to demonstrate to the Owner that the equipment furnished by the Bidder meets the intent and requirement of this specification. These tests shall include but shall not be limited to the tests indicated in the subsequent clauses.

14.02.04.02 **Surge Protection Test for Solid State Equipment**

All solid state equipment shall be able to withstand the noise and surge inherent in a Power House, and shall strictly comply with SWC tests ANSI C 37.90A, 1974 for IEEE-472 (1974). Complete details of the features incorporated in electronic system to meet this requirement, the relevant test carried out, and the test certificates shall be submitted along with the proposal.

14.02.04.03 **Burn-in and Elevated Temperature Test**

All solid state electronic equipment shall be tested as a complete system/equipment with all devices connected for a minimum of 168 hours continuously under energized conditions prior to shipment from manufacturer's works, as per the following cycle :-

During the first 48 hours of testing the ambient temperature shall be maintained at 50 deg.C and relative humidity at 95%. The equipment shall be interconnected with all devices, which will cause it to repeatedly perform all operations; it is supposed to perform in actual service, with load on various components being equal to those, which will be experienced in actual service.

The 48 hours tests period shall be continuous but shall be divided into four 12 hours segments. The input voltage during each 12-hour segment shall be nominal voltage for 11 hours, followed by 110% of normal voltage for 30 minutes followed by 90 percent of nominal voltage for 30 minutes.

The 48 hours elevated temp test shall be followed by 120 hours of burn in test as specified in the above paragraphs except that the temperature is reduced to ambient temperature prevalent at that time. Alternatively copy of type test certificate for burn-in test shall be submitted.

14.02.04.04 The Bidder shall furnish full details regarding shop tests and site tests, as per good engineering practices. The Owner shall approve all such tests and the supplier shall conduct all such tests without calling for additional price.

The tests shall cover factory tests, burn-in and elevated temperature tests, simulation and functional tests, insulation tests as applicable, the rating of the contact devices and components, surge withstand capability test, conformity of interconnection cables, testing and checking of other conditions deemed to be necessary with the system/equipment items.

14.02.04.05 All instruments and control equipment supplied against this contract shall be factory calibrated at least at five (5) points through out the range and checked for their

functional/performance requirements. The instruments shall also be calibrated at site prior to commissioning.

- 14.02.04.06 All panels, instruments enclosures, junction boxes, etc. shall be type tested for degree of protection and applicable in accordance with IS: 2147. 8.02.04
- 14.02.04.07 Type, routine and acceptance testing of all equipments, supplied under this contract, shall be in accordance with relevant NEEA/IS/IEC/ANSI/BS/ISA standards, in addition to the requirements of Owner approved Quality Plans. Six (6) copies of test reports shall be submitted to the Owner for approval prior to dispatch of respective equipment
- 14.02.04.08 The representative of Owner shall be given opportunity to witness the factory tests which shall be mutually finalized during the progress of the contract.
- 14.02.04.09 All control systems to be furnished for this project, shall be factory tested for circuit continuity and direction of response. The Components to be tested shall include all controllers, HAND/AUTO station, other system modules, alarm contactors and multi-conductor interconnecting cables. The tests shall be performed with all of the system components supplied by the Bidder connected to form a complete system with the sole exception of transmitters. The tests shall include a means of confirming the mathematical design response of the control system by simulating changes in system input. The tests shall be a qualitative functional test of each component of control system, which simulates dynamic inputs and monitors system outputs.
- 14.02.04.10 Certain control loops shall be factory tested using closed loop mathematical simulation techniques. Control loops to be tested by closed loop methods are broadly as under. However, owner has discretion to test and all control loops during simulation testing.
- ii) Firing rate control (fuel and air flow control)
 - iii) Furnace draft control
 - iv) Boiler separator level control
 - (d) **Response time for Turbine Control System.**
- The input simulation equipment shall be designed to produce effects from control system outputs based on mathematical model of the predicted performance and process dynamics of the main unit equipment. The control constants of various control loop components shall be adjusted to produce a stable and optimum control adjusted to produce a stable and optimum control when connected to the simulation equipment.
- 14.02.04.11 Simulation data including factory adjustment of control system constants, and simulation equations shall be tabulated and shall be made available by the Bidder for owner's use during field check out and the start up of the control system.
- 14.02.04.12 Availability of a simulated type test for automatic control loops specified with a detailed description of testing methods utilized, shall be indicated.

- 14.02.04.13 The availability of facilities for carrying out the model test for the control systems shall be indicated by the bidder. Also details of test procedures and copies of test results conducted for a similar fossil fuel fired unit shall be furnished. The data required from Boiler and Turbo generator supplies shall also be furnished by the Bidder.
- 14.02.04.14 Brief description of all tests proposed to be conducted on each control system components during various stages of manufacture, installation and commissioning shall be furnished. Copies of test data accumulated during the tests shall be submitted to the mutually agreed formats.
- 14.02.04.15 The owner shall witness the factory tests which shall be performed at a time mutually agreeable to the Bidder and the owner.