

**Bharat Heavy Electricals Limited**

( A Government of India Undertaking)

**BOILER AUXILIARIES PLANT****RANIPET – 632 406, INDIA**

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**MAINTENANCE & SERVICES DEPARTMENT**

<b>NOTICE INVITING TENDER</b>	
Tender Notice No	BAP:M&S:TE:EL:11:007 DT. 12.08.2011
Name of work	<b>ELECTRIFICATION OF FAN TESTING STATION</b>
<b>Period of contract</b>	<b>Three Months</b>
<b>Earnest Money Deposit (EMD) Amount</b>	<b>Rs. 60,000/- (Rs. Sixty Thousand only)</b>
Last date & Time for Receipt of the Tender	<b>24.08.2011 .14.30 Hrs.</b>
Date of Tender bid Opening	<b>24.08.2011 .14.30 Hrs.</b>
Place of submission of Tender	Tender Box placed in M&S Office, BHEL –BAP ,Ranipet – 632 406
Address on the Sealed Tender Cover to be:	SENIOR MANAGER / M&S PLANNING & ES M &S DEPARTMENT BHARAT HEAVY ELECTRICALS LIMITED RANIPET – 632 406 VELLORE DISTRICT TAMIL NADU
Venue of the Tender Opening	M&S Conference hall
Guarantee Period	12 (Twelve months from the date of actual completion of the entire work and handed over to Bharat Heavy Electricals Limited)

**Important note: 1. Vendors registered with other BHEL units for similar work is only to quote with evidence.**

“Similar Works shall mean successfully executed electrification works of Erection & commissioning of HT/LT Transformers, Allied Panels, LT Panels, Cable laying & Termination etc”

**2. Un registered vendors will be considered for the next tender subjected to their eligibility.**

**3. The Tender documents can be down loaded from BHEL website ([http://www.bhel.com/tender/list\\_tender.php](http://www.bhel.com/tender/list_tender.php)) at free of cost.**

**Issued to Messers/Thiru**

**AS PER ANNEXURE ENCLOSED**

**ISSUING OFFICER**

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## **IMPORTANT NOTE TO TENDERERS**

The Bidders are requested to submit their offers in a sealed cover consisting of Two inner sealed covers such as 1) EMD cover 2) Technical/ commercial bid cover, all super scribing the name of the work, Tender Number, Due date etc.

- 1) **EMD cover shall contain requisite EMD in the form of DD. Tenderers who had already remitted one time EMD should furnish the details of Cash Receipt No., Date on the top of the EMD cover. Tender without EMD / one time EMD reference will be summarily rejected and the offer shall not be considered. EMD in any other form except DD will not be accepted.**
- 2) **The Technical/ commercial bid cover shall contain all the document duly filled in and signed by the bidder in all the pages. The tenderer has to quote most competitive rates for all the items in the Bill of Materials. The completed Technical/ commercial bid along with requisite EMD of Rs 60,000 /- for the work in the form off Demand Draft drawn from any Nationalized bank, in favor of ‘Manager / Finance, BHEL, Ranipet’ payable at SBI, Mukundarayapuram Branch ( Code : 7013 ) shall reach the Office of the undersigned on or before 24.08.2011 at 14.30 Hrs. Tenderers who have already remitted one time EMD should furnish the details of Cash Receipt Number and Date on the top of EMD cover. EMD in any other form except DD will not be accepted.**
- 3) **The Technical/ commercial bid will be opened on the same day at 14.30 hrs. In case of opening day falls on holiday or happened to be declared as a holiday the receipt and opening of the Tender shall automatically fall on the next working day. You/Your authorized representative may participate in the tender opening for which they shall bring authorization letter for attending tender opening.**
- 4) Tenderers are required to submit their commercial/price bid in the BHEL format only.
- 5) This latest price bid submitted by the tenderers for the frozen technical and commercial terms and conditions will be opened in the presence of those tenderers who have submitted the latest price bid. Based on this latest price bid only, the ranking of the tenderers will be made and finalize the tender accordingly.
- 6) **Seeking clarification on Tender Specification :** Clarifications on tender specification if any may be sought by the bidders so as to reach this office before the last date for tender submission. BHEL shall not be responsible for receipt of queries after the due date for seeking of clarification due to postal delay.

<b>BHEL’s Contact Officials</b>	<b>1) Sr. Manager / M&amp;S</b>	<b>– 04172 – 284623; 07598045707</b>
	<b>2) Engineer / M&amp;S</b>	<b>– 04172 – 284145; 09489339979</b>

- 7) Price bids received in any form other than prescribed in Part-II (Bill of quantities) are liable to be rejected.

- 8) The tenderer has to quote his rate for all individual items in the Rate Schedule of Price Bid. If the tenderer has not quoted the rate for any item(s), it is considered as incomplete tender and tender can not be accepted.
- 9) **The tender offer should be kept valid for 3 MONTHS from the date of tender opening** for acceptance by BHEL. No unsolicited revision in the tender offer shall be entertained after opening of tenders and till expiry of the validity period.
- 10) **Liquidated Damages/Penalty:** BHEL will impose liquidated damages and penalty as per suitable clauses in the tender specifications on account of delay, violation of contract conditions and non-performance attributable to the contractor.
- 11) Quoted rates shall be firm through out the contract period and extended period also and no cost escalation is allowed on any account.

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**SPECIAL TERMS AND CONDITIONS TO ENQUIRY**

1. BHEL reserves the right to increase or decrease the bill of quantities.
2. Lowest prices received against tender need not be the technically acceptable one, and in that case, BHEL reserves the right not to consider the same.
3. BHEL reserves the right to negotiate or refloat the tender opened, if L1 price is not lowest acceptable price to them inter-alia other reasons.
4. BHEL reserves the right to negotiate with the L1 party.
5. The contract will be finalized based on the overall LOWEST value and not depends on individual items since split in schedules is not possible.

Clarification if any can be obtained from the undersigned before submitting the offer.

Kindly acknowledge the receipt of the entire set of tender document.

Thanking you,

Yours faithfully,  
For Bharat Heavy Electricals Limited,

**Sr. Manager / M&S Planning & ES  
M&S Department**

**E FORMAT**

THE PURCHASE / CONTRACT EXECUTING AGENCY / BHEL

**ACCEPTANCE FOR ELECTRONIC FUND TRANSFER / RTGS TRANSFER**

01	Name & Address of the Supplier / Sub-contractor	
02	VENDOR CODE assigned by BHEL	
Details of Bank Account:		
03	NAME & ADDRESS OF THE BANK	
04	NAME OF THE BRANCH	
05	BRANCH CODE	
06	MICR CODE	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
07	ACCOUNT NUMBER	
08	TYPE OF ACCOUNT	CURRENT A/C / OD / CASH CREDIT
09	BENEFICIERY'S NAME	
10	IFSC CODE OF THE BRANCH	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>
11	EMAIL ID	
12	TELEPHONE/MOBILE NO.	

**CERTIFICATE**

I / We hereby agree to receive the payments due from BHARAT HEAVY ELECTRICALS LIMITED by the National Electronic Funds Transfer and/or RTGS Transfer mode by credit to my / our above mentioned Bank Account. I / We also agree that payments made to the above mentioned Account are a valid discharge of the liability of Bharat Heavy Electricals Limited. I / We also agree to bear the applicable Bank Charges for the above mode of transfer. **A copy of the cheque leaf/cancelled cheque leaf of the above account is sent herewith.**

AUTHORISED SIGNATORY WITH NAME SEAL

**Banker's Certification**

We confirm that we are enabled for receiving RTGS and NEFT credits and we \_\_\_\_\_ further confirm that the account number of \_\_\_\_\_ (name of account holder), the signature of the authorized signatory and the MICR and IFSC codes of our Branch mentioned above are correct.

PLACE:

(Manager / Officer's)

DATE :

Signature Under Bank stamp and Name Seal  
With Membership No.

(Telephone / Mobile No. \_\_\_\_\_ )

Forwarded to Accounts Dept.

We confirm the above details are verified with the records available with us.

Signature of the BHEL Executive with Name Seal (Operating the Contract/Services)

## **CERIFICATE OF NO DEVIATION**

I / We ..... of M/s .....

hereby certify that **there is no deviation** from the tender conditions either technical or commercial and I am /We are agreeing to all the terms and conditions mentioned in the Tender Specification.

Date:

Signature of the bidder

**ANNEXURE-I**

<b>Electrification of Fan Testing Station - Free material supplied by BHEL while executing the contract</b>				
S.No.	Schedule No	Material Description	Quantity	Unit
1	13	LT Main Panel - A (Shibsha Make)	1	No
	12	LT Main Panel - B (Shibsha Make)		
2	1	4000 KVA, 11 KV / 2 x 1800 V Converter Transformer (Sudhir Intravidyut make)	1	No
3	2	700 KVA, 415 / 415 V Isolation Transformer (Sudhir Intravidyut make)	1	No
4	3	IGBT Drive Panel for 3000 KW Motor (Siemens Make)	1	No
	6	PLC Panel for 3000 KW Motor (Siemens Make)		
5	4	IGBT Drive Panel for 500 KW Motor (ABB Make)	1	No
6	5	Resistor Panel for 3000 KW motor (Ohmark Make)	1	No
7	10	HT Isolator for 3000 KW Motor (A-Bond Make)	2	No
8	11	LT Isolator for 500 KW Motor (Control & Schematic make)	2	No
9	7	Control Panel (VRL Automation make)	1	No
	9	Control Desk for 3000 KW Motor(VRL Automation make)		
	8	Control Desk for 500 KW Motor(VRL Automation make)		
10	17	11 KV, 3 C - 95 Sq. mm HT Cable (KEI make)	125	MR
11	18	3.3 KV, 3 C - 300 Sq. mm HT Cable (Ravin Make)	600	MR
12	19	1.1 KV, 3.5 C - 300 Sq. mm LT Cable (KEC make)	700	MR
13	20	1.1 KV, 4 C - 2.5 Sq. mm LT Cable (Thermo cable)	900	MR
14	21	Special Screened cable and control cable	2500	MR
15	24	3 mm dia GI wire	200	MR
16	22	25 X 3 mm GI flat	100	MR
17	23	50 X 6 mm GI flat	400	MR
18	16	300 mm cable tray	400	MR
19	16	150 mm cable tray	200	MR
20	16	50 X 50 X 6 MS angle	3375	KG
		<b>TOTAL AMOUNT</b>	<b>Rs 380.79 laks</b>	

**BHARAT HEAVY ELECTRICALS LIMITED  
BOILER AUXILIARIES PLANT RANIPET - 6**

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**MAINTENANCE & SERVICES DEPARTMENT**

**GENERAL CONDITIONS OF CONTRACT**

**1. DEFINITION**

In General Conditions of Contract(GCC), the following terms shall have the meaning hereby assigned to them, except where the context otherwise requires.

- a) The "**Contract**" means, the documents forming the tender and acceptance thereof, together with all the documents referred to therein including general and special conditions of contract. All these documents taken together shall be deemed to form one contract and shall be complementary to one another.
- b) The "**Work**" means, the work described in the tender documents in individual work-orders as may be issued from time to time to the contractor by the Officer-In charge including all notified or additional items of works and obligations to be carried out as required for the performance of contract.
- c) The "**Contractor**" means, the individual, Firm or Company whether incorporated or not, undertaking the work and shall include the legal representatives or the successors of the individual, firm or company and the permitted assigns of such individual or firm or Company.
- d) "The **Officer-In charge**" means, the Officer deputed by the AGM/M&S to supervise the work or part thereof.
- e) "Approved" and "Directed" means, the approval or direction of AGM/M&S, or person deputed by him for the particular purposes.
- f) "BHARAT HEAVY ELECTRICALS LIMITED" (herein after referred to as BHEL) shall mean the Board of Directors, Chairman, Executive Director, General Manager or other Administrative Officer of the said Company including AGM/M&S authorized to invite tenders and enter into contract for works on behalf of the Company.
- g) The "Contract sum" means, the sum accepted or the sum calculated in accordance with the prices accepted in tender and / or the contract rates as payable to the contractor for the execution of the work during the currency of the contract.
- h) A "week" means, seven days, without regard to the number of hours worked or not worked in any day in that week.
- h) A "day" means, the day of 24 hours (TWENTY FOUR) irrespective of the number of hours worked or not worked in that day.

- j) A "working day" means, any day other than that prescribed by the NEGOTIABLE INSTRUMENTS ACT as being a Holiday, and consists of the number of hours of labour as commonly recognised by good employers in the trade in the district where the work is carried out or as laid down in the BHEL regulations.

## **2. HEADING TO THE CONTRACT CONDITIONS**

The heading to these conditions shall not affect the interpretations thereof.

## **3. WORK TO BE CARRIED OUT**

The contract shall include all labour, materials, tools, plant, equipment and transport which may be required for the execution of the work. The contractor will be deemed to have satisfied himself as to the scope of the work, nature of the site, local facilities of access and all matters affecting the effective execution of the work. No extra charges whatsoever in nature, consequent on any misunderstanding in these respects or otherwise will be allowed.

## **4. DEVIATIONS**

The contractor shall not carry out any work not covered by schedule except in pursuance of the written instructions of AGM/ M&S. No such work shall be valid unless the same has been specifically confirmed and accepted by BHEL in writing and incorporated in the Contract.

## **5. PLANT AND EQUIPMENT**

The Contractor shall at his own expense, supply all tools, plant and equipment (Herein after referred to as T&P) required for the satisfactory execution of the contract unless specified otherwise.

## **6. ASSIGNMENT OF TRANSFER OF CONTRACT**

The Contractor shall not without the prior written approval of the BHEL, assign or transfer the contract or any part thereof, or any share, or interest thereon to any other persons. No sum of money which may become payable under the contract shall be payable to any person, other than the contractor unless the prior written approval of the BHEL to the assignment or transfer of such money is given.

## **7. SUB-CONTRACT**

The Contractor shall not sub-let any portion of the contract without the prior written approval of the BHEL.

## **8 COMPLIANCE TO REGULATIONS AND BY-LAWS**

The Contractor shall conform to the provisions of any statute relating to the work and regulations and Byelaws of any local authority. The Contractor shall be bound to give all notices required by statute regulations or By-Laws as aforesaid and to pay all fees and taxes payable to any authority in respect thereof.

## 9. SECURITY DEPOSIT

- a) Security Deposit shall be collected from the successful tenderer. The rate of Security Deposit will be as below:

Upto Rs.10 Lakhs: 10%

Above Rs.10 lakhs up to Rs.50 Lakhs: 1 Lakh + 7.5% of the amount exceeding Rs.10 Lakhs

Above Rs.50 Lakhs : Rs.4 Lakhs + 5% of the amount exceeding Rs.50 Lakhs

50% of the total security deposit shall be paid by the successful bidder before start of the work.

- b) Security Deposit may be furnished in any one of the following forms:

- i) Cash (as permissible under the Income Tax Act)
- ii) Pay Order, Demand Draft in favour of BHEL.
- iii) Local cheques of Scheduled Banks, subject to realization.
- iv) Securities available from Post Offices such as National Savings Certificates, Kisan Vikas Patras etc., (Certificates should be held in the name of Contractor furnishing the security and duly pledged in favour of BHEL and discharged on the back).
- v) Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The Bank Guarantee format should have the approval of BHEL.
- vi) Fixed Deposit Receipts issued by Scheduled Banks / Public Financial Institutions as defined in the Companies Act. The FDR should be in the name of the Contractor, A/C BHEL, duly discharged on the back.
- vii) Security Deposit shall also be recovered at the rate of 10% from the running Bills. However, in such cases at least 50% of the Security Deposit should be remitted before the start of the work and the balance 50% may be recovered from the running bills.
- viii) EMD of the successful tenderer can be converted and adjusted against the security deposit.
- ix) The security deposit shall not carry any interest.

**Note:**

Acceptance of security deposit against Sl. No. (iv) and (vi) above will be subject to Hypothecation or endorsement on the documents in favour BHEL. However, 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. The Earnest Money paid at the time of tender will be adjusted as part of the Security Deposit and the balance amount will be recovered by deduction from the running bills of the contractor at the rates mentioned above.

Security Deposit shall not be refunded except in accordance with the terms of Security Bond or Agreement. No interest shall be allowed on Security Deposits. BHEL shall not be responsible for any depreciation in the value of the securities while in their charge or for any loss of interest there on.

All compensation or other sums of money payable by the Contractor to BHEL under the terms of this contract or under any other contract with BHEL may be deducted from the Security Deposit or from any sums which may be due or may become due to the contractor by BHEL and in the event of this Security Deposit being deducted by reason of such deductions as aforesaid, the Contractor shall within 7 days thereafter, make good in cash or in securities endorsed as aforesaid, any sum by which the Security Deposit has been reduced.

If the contractor fails to execute the contract either fully or partially or violates the contract conditions leading to cancellation of the contract, the security deposit will be forfeited

**10. ORDERS UNDER THE CONTRACT**

All orders, notices etc. to be given under the contract shall be only in writing. The initial delivery shall be thro e-mode followed by delivery of hard copy. The date of delivery of any such communication shall be deemed to be the date of e-mode communication. The Contractor shall carry out all orders without any delay

**11. CONTRACTOR'S SUPERVISION**

The Contractor shall either himself supervise the execution of the contract or shall appoint a competent agent acceptable to AGM/ M&S , to act in his stead.

Orders given to the Contractor's agent shall be considered to have the same force as if they have been given to the Contractor himself.

The Contractor or his agent shall attend when required without making any claim for doings, either the office of the AGM/M&S or the OFFICER-INCHARGE, to receive instructions.

AGM/M&S , shall have full powers and without assigning any reason, require the Contractor to immediately cease to employ in connection with this contract, any agent, servant or employee where continued employment is, in his opinion undesirable. The Contractor shall not be allowed any compensation on this account.

## 12. LABOUR

The Contractor shall remain liable for the payment of all wages or other moneys to his workmen or employees under the payment of Wages Act 1936, Employees Liability Act. 1938, Workmen's Compensation Act 1923 or any other Act or enactment, relating thereto and rules framed, there under from time to time.

**The current minimum wages for skilled worker is Rs 191.30 / day, semi skilled worker is Rs 185.30 / day and for un skilled worker it is Rs. 178.30 / day. The contractor shall ensure to pay wages not less than this minimum wage to the workers deployed by him in this work along with other statutory payments. Any increase in wages during currency of the contract also to be paid by the contractor within the quoted rates.**

## 13. PRECAUTIONS AGAINST RISK

The Contractor shall be responsible for providing at his own expense for all precautions to prevent loss or damage from any and all risks and to minimize the amount of any such loss or damage and for the necessary steps to be taken for the said purpose.

## 14. DAMAGE & LOSS TO PRIVATE PROPERTY & INJURY TO WORKMEN

The Contractor shall at his own expense reinstate and make good to the satisfaction of the AGM/ M&S , and pay compensation for any injury, loss or damage occurred to any property or rights whatever including property and rights of BHEL (or agents) servants or employee of BHEL, the injury loss or damage arising out of or in any way in connection with the execution or purported execution of the contract and further the contractor shall indemnify the BHEL against all claims enforceable against BHEL (or any agent, servant or employee of BHEL) or which would be so enforceable against BHEL where BHEL is a private person, in respect of any such injury (including injury resulting in death) loss or damage to any person whomsoever or property including all claims which may arise under the Workmen's Compensation Act or otherwise.

## 15. LAWS GOVERNING THE CONTRACT

The Contract shall be governed by the Indian Laws for time being in force.

## 16. CANCELLATION / TERMINATION CONDITIONS

### a) CANCELLATION OF CONTRACT FOR CORRUPT ACTS

BHEL, whose decision shall be final and conclusive, shall without prejudice to any other right or remedy which shall have accrued /shall accrue thereafter to BHEL cancel the contract in any of the following cases and the Contractor shall be liable to make payment to BHEL for any loss or damage resulting from any such cancellation to the same extent as provided in the case of cancellation for default.

If the Contractor shall

- i) Offer or give or agree to give to any person in BHEL service any gift or consideration of any kind, as an inducement or reward for doing or for bearing to do or for having done or for borne to do any act, in relation to the obtaining or execution of this or any other contract for BHEL service,

OR

- ii) Enter in to a contract with BHEL in connection with which commission has been paid or agreed to be paid by him or with his knowledge, unless the particulars of any such commission and the terms of payment thereof have previously been disclosed in writing to BHEL.

OR

- iii) Obtain a contract with BHEL as a result of ring tendering or by non-bonafide methods of competitive tendering, without first disclosing the fact in writing to BHEL.

**b) CANCELLATION OF CONTRACT FOR INSOLVENCY ASSIGNMENT OF TRANSFER OR SUB-LETTING OF CONTRACT**

BHEL, without prejudice to any other right or remedy, which shall have accrued or shall accrue thereafter to BHEL, shall cancel the contract in any of the following cases:

If the Contractor,

- i) being an individual or if a firm any partner thereof shall at any time be adjudged bankrupt or have a receiving order for administration of his estate, made against him or shall take any proceedings for liquidation or composition under any bankruptcy Act or assignment of his effects of composition or arrangement for the benefit of his creditors or purport to do so, or if any application made under any Bankruptcy Act for the time being in force for the sequestration of his estate or if a trust deed be granted by him on behalf of his creditors

OR

- ii) being a Company, shall pass a resolution or the Court shall make an order for the liquidation of its affairs, or a receiver or Manager on-behalf of the debenture holders shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or Manager,

OR

- iii) Assigns, Transfers, Sub-lets or attempts to assign, transfer or sub-let any portion of the work without the prior written approval of the BHEL .

- iv) Whenever BHEL exercise the authority to cancel the contract under this conditions, BHEL may have the work done by any means at the Contractor's risks and expenses provided always that in the event of the cost of the work so done (as certified by AGM/M&S which is final and conclusive) being less than the contract cost, the advantage shall accrue to the BHEL and if the cost exceeds the money due to Contractor under the contract, the Contractor shall either pay the excess amount ordered by AGM/ M&S , or the same shall be recovered from the Contractor by other means.
- v) In case BHEL carries-out the work under the provisions of this condition the cost to be taken into account in determining the excess cost to be charged to the Contractor under this condition shall consist of the cost of the materials, hire charges of tools and plants and/or labour provided by the BHEL with an addition of such percentage to cover superintendence and establishment charges as may be decided by the AGM/M&S, whose decision shall be final and conclusive.

**c) CANCELLATION OF CONTRACT IN PART OR FULL FOR CONTRACATOR'S DEFAULT**

If the Contractor

- i) makes default in carrying out the work as directed and continues in that state after a reasonable notice from AGM/M&S or his authorized representative ;
- ii) fails to comply with any of the Terms and Conditions of the contract or after reasonable notice in writing with orders properly issued there under;
- iii) BHEL, may without prejudice to any other right or remedy which shall have accrued or shall accrue thereafter to BHEL CANCEL the contract as whole or in part thereof or only such work order or items of work in default from the contract. Whenever BHEL exercise the authority to cancel the contract as whole or part under this condition BHEL may complete the work at the contractor's risk and cost (as certified by AGM/ M&S, which is final and conclusive) being less than the contract cost, the advantage shall accrue to the BHEL. If the cost exceeds the moneys due to the Contractor under this contract the Contractor shall either pay the excess amount ordered by AGM/M&S or the same shall be recovered from the Contractor by other means. In case the BHEL carries out the work or any part thereof under the provisions of the conditions the cost to be taken into account in determining the excess cost to be charged to the Contractor under this condition shall consist of the cost of the materials, hire charges of tools and plant and/or labour provided by the BHEL with an addition of such percentage to cover the superintendence and establishment charges as may be decided by the AGM/ M&S, whose decision shall be final and conclusive.

**d) TERMINATION OF CONTRACT ON DEATH OF CONTRACTOR**

Without prejudice to any of the rights or remedies under this contract, if the Contractor dies, or if the firm is dissolved or the company is liquidated BHEL shall have the option of terminating the contract without compensation to the Contractor.

**e) SPECIAL POWER TO TERMINATION**

If at any time after the award of contract, BHEL shall for any reason whatsoever not require whole or any part of the work to be carried out the AGM/M&S shall give notice in writing of the fact to the Contractor who shall have no claim to any payment of compensation or otherwise howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of the fore-closing of the work.

**17. SUBMISSION OF BILLS BY CONTRACTOR**

The Contractor at the end of each month shall submit a bill in triplicate detailing the various items of work done during the month supported by the requisitions issued from time to time. The Contractor shall once in every month, submit to the AGM/M&S or authorized officials of BHEL separately details of his claims for the work done by him up to and including the previous month which are not covered by his contract agreement in any of the following respects:

- a) Deviation from the items provided in the contract documents.
- b) Extra items / new items of work.
- c) Items in-respect of which rates have not been settled. He should in addition furnish a clear certificate to the effect that the claims submitted by him as aforesaid cover all his claims and that no further claims shall be raised by him in respect of the work done up to and including the period under report.

**18. PAYMENT OF BILLS**

All payments to be made to the Contractor, under this contract shall be by “ NEFT ” (National Electronic Fund Transfer) / “ RTGS ” (Real Time Gross Settlement) within a reasonable time say one month after the certification of bills by the AGM/M&S or any official of M&S department authorized by him for this purpose..

**19. RECOVERY FROM CONTRACTOR**

Whenever under the contract, any sum of money, shall be recoverable from or payable by the Contractors, the same may be deducted from or any sum then due or which at any time thereafter may become due to Contractor under the contract or under any other contract with BHEL or from his Security Deposit or he shall pay the claim on demand.

## **20. POST- TECHNICAL AUDIT OF WORK AND BILLS**

BHEL reserves the right to carry out the post-payment Audit and technical examination of the work and final bill including all supporting vouchers, abstracts etc., and enforce recovery of any sum becoming due as a result thereof in the manner provided in the presiding sub-paragraphs. However no such recovery shall be enforced after three years of passing the final bill.

## **21. REFUND OF SECURITY DEPOSIT**

The Security Deposit mentioned in condition 09 above may be refunded to the Contractor after a period of 6 months on termination or expiry of the contract provided always that the Contractor shall first have been paid the last and final bill and have rendered a "NO DEMAND CERTIFICATE".

## **22. FORCE MEJEURE CLAUSE**

If, at any time during the continuance of this Contract the performance in whole or in part by either party of any obligations under this Contract shall be prevented or delayed by reason of any War, Hostile acts of the public enemy, Civil Commotion, Epidemics, or Acts of God (Floods, Storm/Cyclone, Hurricane, Earth Quake etc.) then provided notice of happening of any such event is given by either party to the other within 7 days from the date of any such occurrence thereafter neither party shall by reason of such event be entitled to terminate this Contract nor shall either party have any claim for damages against the other in respect of such non-performance and delay in performance under the contract and the work shall be resumed as soon as practicable after such event has come to an end or ceased to exist. If the performance in whole or part of any obligation under this Contract is prevented or delayed by reason of any such event, claims for extension of time shall be granted for periods considered reasonable by the AGM / M&S subject to prompt notification by the contractor.

## **23. ARBITRATION & JURISDICTION**

All disputes between the parties to the contract, arising out-of or relating to the contract, other than those for which the decision of the AGM/ M&S , or Accepting Officer or any other person is by the contract expressed to be final and conclusive shall after written notice by either party to the contract to the other party be referred to the sole Arbitration of GENERAL MANAGER or other Officers of BHEL appointed as Arbitrator, by the GENERAL MANAGER of BHEL in his sole discretion.

Unless the parties otherwise agree, such reference shall not take place until after the completion, alleged completion or abandonment of the work of the determination of the contract.

The venue of Arbitration shall be such a place or places as may be fixed by the Arbitrator in his sole discretion. The award of the Arbitrator shall be final, conclusive and binding on both parties to the contract.

In case of any suit or other legal proceeding arising under or relating to this contract, the courts at Ranipet, Walajah Taluk, Vellore District, Tamil Nadu only shall have the Jurisdiction and is only after exhausting the Arbitration as above.

## 24. SIGNING OF CONTRACT

Each Contract document shall be signed by the Contractor with his usual signature. Contract by partnership of Hindu Joint Family firm, may be signed in the FIRM'S name by one of the Partners or the Karta or Manager as the case may be or by any other duly authorized representative followed by the name and designation of the persons so signing. Contracts by a Company shall be signed with the name of the Company by a person authorized in this behalf and a power of attorney or other satisfactory proof showing that the persons signing the Contract documents on behalf of the Company is duly authorized to do so, shall accompany the contract.

25. All statutory requirements under Minimum Wages Act 1948, Factories Act 1948, Workmen Compensation Act 1923, Employees Provident Fund and Miscellaneous Provisions Act, 1952, Payment of Gratuity Act 1972, Employee State Insurance Act 1948, Contract Labour (R&A) Act 1970, Payment of Bonus Act 1965, Income Tax Act, Service Tax Act and all other applicable Acts shall be complied with by the Contractor.
26. Contractor shall comply with all statutory requirements, rules, regulations and notifications in relation to employment of his employees issued from time to time by the concerned authorities.
27. Contractor shall indemnify BHEL against all claims and losses under various Labour Laws, statutes or any civil or criminal law in connection with employees deployed by him.
28. Contractor wherever applicable shall maintain proper records prescribed by the concerned statutory authorities and provides a copy of the same to BHEL.
29. Contractor shall furnish proper returns to the concerned statutory authorities and provide a copy of the same to BHEL.
30. **Compensation for Delay** : If any delay in completion of the work occurs beyond the stipulated / extended contract period due to reasons attributable to the contractor, the contractor shall compensate BHEL for the delay and pay a penalty @ ½ % per week subject to maximum of 7 1/2 % (seven & half) of at contract rates of the work ordered.

The amount of compensation may be adjusted or set-off against any sum payable to the contractor under this or any other contract with the BHEL.

## 31. General

The Contractor should follow all the provisions of Labour Legislation and Statutory obligations. Provisions as and when amended will also apply.

## **GENERAL INSTRUCTIONS TO TENDERERS**

1. Sealed Tenders for the work mentioned in the Schedule are invited from Contractors experienced in works of similar kind and magnitude.
2. Tenders must be submitted **in sealed covers** and should be addressed to

**Senior Manager /M&S planning & ES,  
M&S Department,  
Bharat Heavy Electricals Limited,  
RANIPET – 632 406.**

**The Name, Address of the Tenderer and the name of work shall be clearly mentioned on the cover.**

3. Tenders will be received up to **14:30 Hrs. on 24.08.2011** in the prescribed form and will be opened on 24.08.2011 at 14.30 Hrs. at M&S Office Conference Hall in the presence of such of those Tenderers or their agents who may choose to attend.
4. All entries in the tender documents should be in one ink. Erasures and over-writing are not permitted. The Tenderers concerned should duly sign all cancellations and insertions.
5. Tenderer should fill in all the required particulars in the blank spaces provided for this purpose in the tender documents and also sign and seal each and every page of the tender document including the drawings/annexure attached thereto before submitting the tender.
6. Conditional and un-witnessed tenders, tender containing absurd rates and amounts, tenders, which are incomplete or otherwise, considered defective and tenders not in accordance with the tender conditions laid down by the Accepting Officer are liable for rejection.
7. Tenders not submitted in the prescribed forms are liable for rejection.
8. In quoting the rates, the Tenderers are advised to take into account all factors including any fluctuations in the market rates etc. No claim will be entertained on this account after acceptance of the tender or during the currency of the contract.
9. Before tendering, the Tenderers are advised to inspect the site of work and its environments and be well acquainted with actual working and other prevalent conditions, position of materials and labor. General instructions to Tenderers, drawings, specifications and other documents also form part of the agreement to be entered into.
10. The rates quoted in the tender shall remain valid for a period of **THREE MONTHS** from the date of opening of the tender.
11. In the event of tender being submitted by a firm, the tender must be signed separately and legibly by each partner or member of the firm or in their absence, by the person holding the Power of Attorney on behalf of the firm concerned. In the latter case, a copy of the Power of Attorney duly attested by a Gazette Officer must accompany the tender.

**12. Every Tender must be accompanied by ‘Earnest Money Deposit’ of Rs.60,000/- (Rupees Sixty thousand only) in the form of Demand Draft drawn from any Nationalized bank, in favor of ‘Manager / Finance, BHEL, Ranipet’ payable at SBI, Mukundarayapuram Branch ( Code : 7013 ).**

**EMD will not carry any Interest.**

13. Unless the Contractor whose tender is accepted, signs the contract and makes necessary Security Deposit specified within fourteen days from the date of the order directing him to do so, the earnest money deposited by him will be forfeited and acceptance of his tender withdrawn.

14. The Bharat Heavy Electricals Limited, reserves the right to reject any or all the tenders received or accept any tender or part thereof without assigning any reason there for. In case of acceptance of a part of tender, time for completion may also be reduced to the extent considered appropriate by the accepting authority.

15. Unit rates should be quoted in figures as well as in words with reference to each item and for all the items shown in the attached schedule. These rates shall be for the finished work at site.

16. Rates for each item of the tender schedules should be quoted in rupees and paise only. In case of any difference in the rates quoted in figures and in words, the lower of the two rates will be taken as the tendered rate.

**17. Rates quoted SHALL INCLUDE ALL royalties, terminal taxes, octroi, duties, central and provincial excise tax, sales tax / VAT and other taxes levied under the State or Central Government Rules including applicable service tax for this work. BHEL will reimburse the service tax to the contractor, subject to service tax invoice as per Law. While quoting , the Tenderer should take in to account the implication of service tax on the Value of Free materials supplied by BHEL which will work out to Rs.380.79 lakhs as per Annexure-I.**

**18. The L1 will be decided based on the lowest cost to BHEL.**

**The quoted rates shall also include expenditures towards complying statutory payments like Provident fund, ESI payments, bonus etc for the labourer & staff deployed in the work.**

The contractor will have to submit the Service Tax Registration certificate to BHEL and claim the Service Tax from BHEL by submitting Tax invoice as per Rules & Regulations of Service Tax and the documentary evidence will have to be submitted. If for any reason, the contractor has to pay penalty, interest on service tax, the contractor has to bear such additional payment. **The Bharat Heavy Electricals Limited will not entertain any claim in this regard.**

19. Should a Tenderer find discrepancies or omissions in the tender documents or should be in doubt as to their meaning, he should at once address the authority inviting the tender for clarification. Every endeavor is made to avoid any error which can materially affect the basis of the tender but the successful tenderer shall take up on himself to provide for the risk of any error which may be subsequently discovered and shall make no subsequent claim on account thereof.
20. Tenders submitted by post should be sent "REGISTERED POST WITH ACK.DUE". This should be posted with due allowance for any delay in postal delivery. On no account, will tenders received after the due date and time of opening tenders, be considered.
21. Quantities shown in the attached schedules are only approximate and liable to change Without entitling the contractor for any compensation.
22. Should a Tenderer or a contractor has a relative or in the case of a firm or company of contractors any of its shareholders or share holder's relative, employed in Bharat Heavy Electricals Limited, the authority inviting tenders shall be informed of this fact at the time of submission of the tender failing which tender may be disqualified or if such fact subsequently come to light, the contract may be rescinded.
23. If the Tenderer expires after submission of his tender, the Bharat Heavy Electricals Limited may be at the discretion of cancel such tender.
24. If a partner of a firm expires after submission of the tender or after the acceptance of the tender, Bharat Heavy Electricals Limited may cancel such tender at the discretion unless the firm retains his character.
25. The Bharat Heavy Electricals Limited will not bound by any Power of Attorney granted by the Tenderer or changes in the composition of the firm made subsequent to the execution of the contract. They may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contract concerned.
26. The contractor deliberately, gives wrong information in his tender or creates conditions favorable for the acceptance of his tender, Bharat Heavy Electricals Limited reserves the right to reject the tender at any stage.
27. Words imparting the singular number shall also deem to include the plural number and vice versa where the context so requires.
28. The expenses for completing and stamping the agreement shall be to the contractor's account.
29. The General and Special Conditions of Contract are complimentary to each other and where they are in conflict, the Special Conditions shall prevail. In regard to matters not covered by the General or Special Conditions of Contract, those contained in the specifications approved by Bharat Heavy Electricals Limited shall apply.

30. Tenderers shall not increase their quoted rates incase Bharat Heavy Electricals Limited negotiated for reduction of rates, such negotiations shall not amount to cancellation or withdrawal of the original offer and the rates originally quoted shall be binding on the Tenderers for a period of Three months from the date of opening of tender.
31. Canvassing in any form in connection with the tender is strictly prohibited and the tenders submitted by the contractors who resort to canvassing will be liable for rejection.
32. All contractors will have to produce Income Tax clearance certificate from the Income Tax authorities concerned along with their tenders. Those contractors whose income is not taxable will be required to give an affidavit of their income on the prescribed form.
33. The "GENERAL INSTRUCTIONS TO TENDERERS" shall be deemed to form an integral part of contract for the work to be entered into.
- 34. The contractor should posses necessary licenses, PF A/c No, and should take Insurance for his workers and produce them before commencement of work.**
- a. As per employees PF and misc. provisions Act 1952, the employee's contribution payable at present is 12% of wages which shall be recovered by the Contractor from the wages of his workmen and the contractor should pay equal contribution in addition to any administrative charges in this behalf that may be decided from time to time. Remittance shall be made on time (i.e. on or before 15<sup>th</sup> of the following month).
- b. All the contract workers shall be enrolled in ESI (Employees' State Insurance). The effective date will be first day of the latest commencement of running contract concerned. The date shall be entered in the 'Date of Appointment' column of the ESI Declaration Form. The workers who are already members of ESI need not be enrolled again.
- c. The filled ESI declaration forms shall be submitted to the Executive (HR-CLX, REX). In the Declaration Form full address of the contractor shall be mentioned. Whenever a fresh and unregistered worker is engaged during the operation of contract, declaration form in respect of that workman which should be submitted to Human Resources Department within two days of such engagement.
- d. ESI contributions (1.75% employees contribution + 4.75% employer contribution of the total monthly wages) before 20<sup>th</sup> day of every following month. Prescribed challans are available at ESI local office, Ranipet (near Sipcot). Contractors who have got their own code number can remit the contributions on that number.
- e. Along with the challan copy, the details of remittance shall be submitted to the Executive (HR-CLX, REX) in the ESI compliance form.
35. The contractor should deduct Provident Fund and ESI amount as per the provisions and amount so deducted along with the matching contribution of the contractor shall be remitted to the authorities concerned within the stipulated time. The statement of deduction along with the challans evidencing remittance shall be submitted to Officer-in- charge. .

BHEL have the right to withhold the payment of bills. Submission of statutory returns such as Half Yearly returns of ESI (Form 6), P.F. return (Form 12A), Form 5 and Form 10, Form 3A & Form 6A should be send to the concerned officers in time.

36. In case of any increase in wage rates on account of revision of minimum wages by Government of Tamil Nadu and any revision of rate of contribution in Provident Fund, ESI and Bonus percentages due to statutory amendments, the contractor is bound to pay the revised amount. In case the revision of minimum wages is made by Government of Tamil Nadu with retrospective dates, the contract is bound to pay such arrears arising out of such revision of minimum wages retrospectively, failing which BHEL as the principal employer will retain the amount from the contractor and pay to contract labourers working under him.
37. The workers' particulars such as Name, Age, Father's name, address etc., and their daily attendance have to be maintained by the contractor. The details of Provident Fund and ESI compliance have to be maintained by the contractor in the prescribed format/register.
38. As per the Contract (Regulation & Abolition) Act, 1970 & Allied Rules, the contractor employing 20 or more labourers is required to obtain license from the Inspector of Labour, Vellore. This license shall be amended and/or renewed whenever there is an increase in the workman employed by him or in the event of contract being extended or renewed. The contractor shall inform the License Number so obtained to the Human Resources Department.
39. The contractor shall maintain the following Registers and Records and make them available for inspection at any time. (The list is only for example, but not exhaustive).
  - a) Muster Roll
  - b) Register of Wages
  - c) Register of Deductions
  - d) Register of Overtime
  - e) Register of Fine
  - f) Register of Advance
  - g) Wage slips
  - h) Register of Accidents
  - i) Register of Leave with Wages
  - j) ESI Register in Form-7

All registers are required to be maintained as above and shall be produced as and when Government Officials and Statutory Authorities to make inspection from time to time.

40. In case a contract labourer meets with an accident while on duty, the contractor shall immediately intimate the information to Safety Department, Contracting Agency and Human Resources Department and submit the Accident Report duly filled in all respect and send a copy to ESI local office, ESI Dispensary and Inspector of Factories (for major accidents) with in 24 hours of accident through Safety and Human Resources Departments. All assistance for the injured workman such as to taking him to ESI Dispensary for treatment must be rendered by the contractor.
41. Compliance of the above provisions does not absolve the obligation of contractor arising out of other statutory obligations.
42. Employment of child labour is strictly prohibited.

43. Contractor should employ only persons having sound health and not above the age of 58 years, and not below the age of 18 years.
44. Payment of Bonus: In respect of work done by the labour, the contractor has to pay to his labourers as laid down by the Payment of Bonus Act – 1965.
45. The Tenderer should be present if called for negotiation of technical / commercial. In case, the Tenderer's authorized person is attending the negotiation such person should have the authorization letter and he should be capable of taking spot decisions.
46. In case the tenderer is not interested in submitting your quotation, they should return all the tender papers with a covering letter stating that your regrets for not submitting your offer for this tender.
47. If required Tenderers may visit the site/working area and obtain all clarifications from Tender Issuing Officer regarding the nature of job before offering their quotation.
48. The contractor should have registered for Service Tax and a copy of registration certificate shall be attached along with the offer.
49. The contractor shall include all the applicable taxes in the offer and any claim after the issue of contract will not be entertained.
50. In case if any Taxes not applicable, like due to threshold limit etc. Same may be clearly indicated in the offer by the Tenderer.
51. Tender shall adhere to the working instructions of respective OEM Suppliers of free issue materials.
52. Tender , if awarded shall exercise at most care and deligens while handling the free issue materials.

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## **SAFETY RULES**

- 1) A list containing the names of persons working, their age, designation, pay, nature of work shall be furnished in triplicate immediately on receipt of the work order.
- 2) The work shall be carried out in the presence of contractor's supervisor with prior permission obtained from the concerned supervisor of section before take up the work.
- 3) In case of cable laying work, prior permission from the concerned Electrical supervisor and Civil department for road cutting and it is required to ensure that proper precautions are taken. Work permits shall be obtained before commencing the work, whenever necessary.
- 4) While digging the road, a good barricade with proper sign board shall be provided in the area.
- 5) While erecting poles, proper safety precautions, such as supporting the poles, tying with ropes, using suitable tools and tackles shall be adhered to.
- 6) While working in heights, proper platform, ladder, safety belts etc. shall be used.
- 7) Necessary safety equipments like hand gloves, lineman's belt, helmet etc. shall be issued to the workmen and to be used.
- 8) In any work man was found to violate the safety regulations, punitive action will be taken by withholding of Rs.500.00 to Rs.1000.00 from his salary for each violation.
- 9) These safety rules shall be deemed to form the part of the Work Order/ Agreement.

The General Instructions to the Tenderers shall be deemed to form the part of the contract for the work to be entered in to.

## **SPECIAL CONDITIONS FOR ELECTRICAL OF FANTESTING STATION**

### **1 SCOPE OF WORK**

- 1) The work covered under this specification is of highly sophisticated nature requiring the best quality of workmanship, engineering and construction management. The contractor should ensure timely completion of work. The contractor must have adequate quantity of tools. Measuring instruments, calibrating equipment etc. in his possession. He must also have on his rolls adequately trained. Qualified and experienced engineers supervisory staff and skilled personnel. The manpower deployment identified by contractor should match requirement of sophistication involving microprocessor-based systems.
- 2) The work shall be executed under the usual conditions. The contractor and his personnel shall co-operate with the personnel of other agencies. Co-ordinate his work with others and proceed in a manner that shall not delay or hinder the progress of work as whole.
- 3) All the work shall be carried out as per the instructions of BHEL engineer. BHEL engineer's decision regarding the correctness of the work and method of working shall be final and binding on the contractor.
- 4) The services, tests and support to be provided by the agency of the work mentioned in the various sections of this tender are indicative and not exhaustive, but not limited to these for the completion of the work in all respects.
- 5) Contractor shall erect, test and commission all the equipments, cabinets/panels, instruments and cabling etc. as per sequence prescribed by BHEL Engineer in- charge. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the methods of erection / commissioning adopted in erection / commissioning of similar jobs or for any reasons whatsoever.
- 6) The work to be carried out under the scope of this specification covers the complete work of loading, handling, transporting, unloading, pre -assembly, erection, testing, assistance for commissioning of systems, achieving various activities. The work shall conform to dimensions and tolerances specified in various drawings that will be provided during the erection. If any portion of the work is found to be defective in workman ship or not conforming to drawings or other specifications the contractor shall dismantle and re-do the work duly replacing the defective materials at his cost, failing which the work will be got done by engaging other agencies and recoveries will be effected from contractor's bills towards expenditure incurred including departmental charges.
- 7) The terminal points as decided by BHEL shall be final and binding on the contractor for deciding the scope of work and effecting payment for the work done.
- 8) All works such as cleaning, leveling aligning trial assembly, dismantling of certain equipments / components for checking and cleaning, fabrication as per general engineering practice and as per BHEL engineers instructions at site cutting, weld depositing, grinding ,straightening, chamfering filling of cut outs/openings for mounting of console inserts modules indicators recorders drilling of holes for gland entries reaming scrapping cable laying dressing fitting up etc. as may be applicable in such erection works are treated as incidentals to erection work and are necessary to complete the work satisfactorily shall be carried out by the contractor as part of the work.

- 9) Housekeeping in the erection and pre-assembly area is as important as the well-planned and orderly work. The access to site for inspection by BHEL engineers and leading of the material shall be made available by the contractor at all times. The shifting and re-shifting of erection materials tools and plants and clearance of restrictions filling of ditches undulation near the pre-assembly and boiler area is the responsibility of the contractor. Contractor should visit the site and acquaint himself with all restrictions and difficulties that he may encounter during erection/commissioning stages.

## **2 ERECTION OF TRANSFORMER**

- 2.1 The scope of work under this head is defined as below.OEM supplier will be available for all equipments erection before start up work and commissioning. Contractor has to coordinate with that team for commissioning.
- 2.2 Transportation of transformer and accessories from BHEL stores/ Storage yard to the transformer foundations, assembly of loose supplied items erection, testing & commissioning.
- 2.3 The transformers shall be handled in such a manner so that no jerk is transferred to the core, winding and internals of the transformer.
- 2.4 Placement on plinth, alignment with respect to the foundation and lay out drawings.
- 2.5 Topping up of Oil, Filtration of Oil.
- 2.6 All the accessories shall be assembled/mounted as per GA drawings and these should be thoroughly cleaned prior to installation.
- 2.7 Contractor shall arrange required testing equipments for carrying out electrical test like winding resistance measurements, BDV value of oil, insulation resistance, measurement of oil PPM etc.,
- 2.8 Contractor shall discuss and finalize installation and testing activity procedure with BHEL prior to starting the work.

## **3 . ERECTION OF PLC PANEL PACKAGE**

- 3.1 The scope of PLC system includes erection of sophisticated microprocessor based systems PLC panels, workstations, UPS and interconnecting cables like electronic earthing of the PLC panels etc.
- 3.2 Unit rate quoted for PLC system shall cover installation & integration of all the above said equipment and providing necessary commissioning assistance. No separate unit rate applicable for installation of all loose items/ modules/ components or accessories etc, which is not explicitly mentioned in the rate schedule, but comes as part of the system.

#### **4. INSTALLATION OF PANELS, ISOLATOR PANELS AND RESISTANCE PANELS.**

- 4.1 OEM Supplier will be available for supervision of all equipments told in work schedule **Sl.No 1, 2,3,4,6,7,8,9**. Electrical control panels, electronic control panels, supervisory control desk, 415 Volt LTMCC, PLC panel, Instrument enclosures/panels, analyzer panels etc. are normally supplied. These panels may have to be installed as stand alone or in groups consisting of number of panels, depending upon the plant layout and foundation arrangement.
- 4.2 Installation of panel shall include fixing of base frame fabrication of base frame if required leveling alignment fixing of anti-vibration pads, removal of side covers fixing of cubicle interconnection hardware, bus bar jointing, wiring interconnection, welding and grouting of panels and base frames mounting of panel canopy wherever supplied as part of panel, drilling of gland plates (if additionally required) and sealing of cable entries.
- 4.3 The panels shall be transported from stores to place of installation in vertical position. Care shall be taken such that the switches, lamps, instruments etc., mounted on the panel do not get damaged during transit.
- 4.4 Panel and instruments once erected in position should be properly protected using necessary care to prevent ingress of dust/moisture. This will have to be periodically cleaned and surroundings have to be kept tidy.
- 4.5 Wherever the panels to be mounted on cable trenches channel supports have to be provided across the cable trench over which the base frame of panel shall be mounted.
- 4.6 Normally the panels shall be supplied with instrument, relay, meters, electronic modules etc. mounted and pre-wired. However if these are supplied loose / separately for safety in transit contractor shall mount/wire such devices as part of the panel installation work and no separate rates shall be applicable unless otherwise specially listed in the rate schedule.
- 4.7 No separate payment shall be made for replacement of any devices like electronic modules relays conductors terminal block push buttons etc. which are found defective during pre-commissioning / post-commissioning of any equipment / item.
- 4.8 Minor civil works like drilling, chipping, punching holes and opening in concrete floors slabs and brick walls grouting related to Rack support installation minor civil works required for installation of control panels Junction boxes etc., shall be included in the erection cost of such items. The scope also includes supply of grouting material, if any.

#### **5. STRUCTURAL STEEL FABRICATION AND ERECTION**

- 5.1 Structural steel material like MS angles, channels, etc. shall be supplied in running meters by BHEL and same shall be used for fabrication of panel base frame, cable tray supports, supporting frames for instruments, junction boxes, distribution boards etc., canopies for instruments/panels/JP/push button stations etc.

- 5.2 This shall include cutting to size, contouring of end for connections if required, welding, grinding of excess weld deposits/ burrs, drilling of holes for mounting of device/instrument, installation at location, leveling, alignment, providing bracings, painting etc. **No gas cut holes will be permitted.** Contractor to follow the BHEL supplied welding schedule and welding procedures.
- 5.3 All the fabricated supports/frames shall be painted as per painting schedule. **All paints, primers etc. are in the scope of the contractor.**
- 5.4 Frame installation/cable tray accessories installation may involve mounting either on concrete floor by grouting/using anchor fasteners or on steel structure by welding etc. All consumables shall be arranged by the contractor.
- 5.5 In certain packages galvanized members of junction box frames and instrument racks shall be supplied in cut to sizes and frame assemblies are required to be done as per drawing by bolting/welding. The installation rate as quoted shall include the assembling of the frames.
- 5.6 Gas cutting of tray support and gas cut holes in frame shall be avoided. Only drilled hole shall be permitted in frame.
- 5.7 All the work shall be carried out as per the instructions of BHEL engineer. BHEL engineer's decision regarding the correctness of the work and method of working shall be final and binding on the contractor.
- 5.8 The services, tests and support to be provided by the agency of the work mentioned in the various sections of this tender are indicative and not exhaustive, but not limited to these for the completion of the work in all respects.
- 5.9 Contractor shall erect, test and commission all the equipments, cabinets/panels, and cabling etc. as per sequence prescribed by BHEL. The sequence of erection / commissioning methodology will be decided by the BHEL engineers depending upon the availability of materials/work fronts etc. No Claims for extra payment from the contractor will be entertained on the grounds of deviation from the methods of erection / commissioning adopted in erection / commissioning of similar jobs or for any reasons whatsoever.
- 5.10 The work to be carried out under the scope of this specification covers the complete work of loading, handling, transporting, unloading, pre-assembly, erection, testing, air flushing, pre-commissioning tests, assistance for commissioning of systems, trial run of various auxiliaries, achieving various activities till handing over of the unit to BHEL. The work shall conform to dimensions and tolerances specified in various drawings that will be provided during the erection.
- If any portion of the work is found to be defective in workmanship or not conforming to drawings or other specifications the contractor shall dismantle and re-do the work duly replacing the defective materials at his cost, failing which the work will be got done departmentally or by engaging other agencies and recoveries will be effected from contractor's bills towards expenditure incurred including departmental charges.
- 5.11 The terminal points as decided by BHEL shall be final and binding on the contractor for deciding the scope of work and effecting payment for the work done.

- 5.12 All works such as cleaning, dismantling of certain equipments / components for checking and cleaning, as per general engineering practice and as per BHEL engineers instructions at site cutting weld depositing, grinding straightening, chamfering filling of cut outs/openings for mounting of console inserts modules indicators recorders drilling of holes for gland entries reaming scrapping cable laying dressing fitting up etc. as may be applicable in such erection works are treated as incidentals to erection work and are necessary to complete the work satisfactorily shall be carried out by the contractor as part of the work.
- 5.13 Housekeeping in the erection and pre-assembly area is as important as the well-planned and orderly work. The shifting and re-shifting of erection materials tools and plants and clearance of restrictions Contractor should visit the site and acquaint himself with all restrictions and difficulties that he may encounter during erection/commissioning stages.

## **6. INSTALLATION OF CABLE TRAYS AND ACCESSORIES**

- 6.1 Erection of Cable Trays includes installing ladder/perforated type cable trays in cable trenches, steel columns, overhead areas etc. on the supports already provided. Approximate quantity is indicated in the rate schedule.
- 6.2 Cable trays, coupler plates and fasteners shall be supplied by BHEL.
- 6.3 Only straight trays will be supplied by BHEL. Other accessories like Bends Tees. Cross, etc... which may be required for proper laying of cable as per cable routing will be fabricated by the contractor. The fabricated trays shall conform to the shape and configuration of original bends etc that would have been supplied. The fabrication of the bends from straight trays will include cutting the ladder steps, bending the side plates to the required radius and re-welding the ladder steps with the bent plates. Trays supplied will be of G.I. and hence Suitable electrode only shall be used for welding purposes. All cuttings shall be done only with hack-saw and gas cutting should not be resorted to.
- 6.4 The cable trays shall be adequately tack welded to supporting steel work and shall be sufficiently supported to prevent sagging. The weld shall be painted using cold galvanizing paint (supply of paint is in the scope of contractor).

## **7. ERECTION OF JUNCTION BOXES AND PUSH BUTTON STATIONS**

- 7.1 Various Junction Boxes and Push Button stations shall be supplied with required holes in the gland plates, required cable glands and lugs.
- 7.2 The unit rate quoted for erection of JB's and Push button stations shall cover installation of JB's/SSPB's on supporting frames, painting the tag nos. of JB or fixing separate tag plate on JB's/SSPB's.
- 7.3 Required fasteners shall be supplied by Contractor.

## 8. CABLE LAYING

- 8.1 Laying of power and Control Cable includes transportation from BHEL's stores, laying, dressing, clamping and tagging cable marker at both ends. The cable shall be laid in Ladder / perforated type cable trays. The Cables shall be tied after dressing using 3mm dia nylon ropes/ties and the nylon ropes/ties shall be supplied by the contractor.
- 8.2 The cable shall be clamped suitably with cable trays at maximum 1.5M interval using 3mm aluminum clamps/strips as per the instruction of BHEL Engineer. **Supply of necessary strips/clamps and bolts for the above work is included in the contractor's scope.**
- 8.3 The contractor shall lay the cables on cable trays, in built-up cable trenches, vertical tray ways, overhead areas and supports, pulled through conduits, pipes, run clamped on wall / ceiling steel structure etc. A uniform rate to be quoted shall include laying, proper dressing, tying etc. Standard of Workmanship shall be to the approval of BHEL Engineers.
- 8.4 The arrangement of the Cable and all methods of laying shall be planned to provide an orderly formation to avoid bends and crossings and to facilitate easy removal of any one cable without undue disturbance to adjacent cables. The Standard of Workmanship shall be to the approval of BHEL Engineers.
- 8.5 Cable laid in (or) entering into (or) emerging from cable racks, cable trays, conduits, cable supports shall be suitably formed to avoid bearing against sharp edges.
- 8.6 When cables pass through floors, walls etc., it shall be passed through a pipe for mechanical protection and the pipe ends sealed suitably.
- 8.7 Care shall be taken to avoid sharp bending and kinking of conductor, damaging insulation and stressing the cable beyond the pulling force recommended by the manufactures. Cables shall be protected at all times from mechanical damage.
- 8.8 Where cabling passes through brickwork (or) concrete work suitable local protection against mechanical damage shall be provided by the contractor.
- 8.9 Jointing of cables, if necessary, shall be done by crimping type cable joints after getting the approval of BHEL Engineers.
- 8.10 Entry to the panels and JB's may be at top, sides or bottom. All cables are required to be properly supported and clamped near to the JB panel.
- 8.11 Many of the cable trays and cables have to be laid in cable trenches. For this purpose the cover of the trenches have to be opened for working in site and whenever the cables are to be laid in existing cable tray, all safety precautions have to be observed. After completing the work the trenches have to be cleaned and covers put back into position. Contractor shall also carry out de-watering from the trenches if required and arrange pumps etc., at his cost.
- 8.12 Contractor shall carefully plan the cutting schedule of each cable drum in consultation with site engineer such that wastages are minimized.

## **9. TERMINATION OF CABLES**

- 9.1 All the cables laid by the contractor shall be terminated by him. **Cable glands and lugs will be contractor's scope.** Unit rates for various sizes of cables are to be indicated in rate schedule.
- 9.2 Termination includes dressing & glanding, splicing and dressing inside panels, JBs etc., providing printed ferrules (**contractor to arrange ferrule**) and crimping of lugs.
- 9.3 Supply of required PVC cable ties, PVC ferrules, PVC button and tapes, PVC sleeves, compounds, necessary tools, joining materials etc. shall be supplied by the contractor within the quoted rates for cable termination.
- 9.4 Necessary tools required for cable termination/ HT cable jointing kit shall be in the scope of the contractor..
- 9.5 At cable termination points, where the conductor and the cable insulation will be terminated shall be made in a neat workmanship.
- 9.6 Cable lugs shall be provided by compression, adapting necessary crimping tools. Insulating sleeves shall be provided over the barriers and conductors to prevent accidental contact with ground (or) adjacent terminals. The insulating sleeves shall be fire resistant and be long enough to over pass conductor insulation and shall be properly sized.
- 9.7 Termination of all cables installed by the Contractor is included in his scope. The work of testing and reconnection, changing of connections, re-arrangement of leads to required extent shall be carried out by the contractor without additional cost.
- 9.8 Cable shielding – all signal cables are supplied with bare shielded copper wire/with braided wire shield. Generally shield wire is kept isolated at instrument/field device end and continuity is maintained through JB and grounded at panel end only. While terminating the shield wire, either in panel or JB, PVC sleeves are to be used to avoid two-point earthing.

## **10. INSTALLATION OF EARTHING**

- 1) Installation of above-ground earthing for the complete system is the scope of the contractor. Fixing fasteners are contractor's scope. Required quantity of GI flat and 3mm solid GI Wire will be supplied by BHEL at free of cost.
- 2) Earthing of all motors, Switch gear Panels, LTMCC , PLC, Electronic Control Panel, Push Button Stations, Junction Boxes, Transformers, Heaters, thermostats, instruments, Cable trays and accessories, cable armours and conduits used for cable installation, etc. are in the scope of work.
- 3) Installation of earthing conductors and terminations at the equipments and at the earth rings / buses/ earth pits and the necessary clamping of the conductors shall be carried out by the contractor. The tentative quantities required for the earthing is indicated in the rate schedule.

- 4) All equipments shall be earthed by two separate and distinct connections. Earthing terminals will be available in all the equipment.
- 5) The earthing conductor of galvanized mild steel strips will be supplied by BHEL. All connections for the equipment to the main earthing conductor shall be made as indicated in during execution of work.
- 6) A continuous earthing conductor shall be installed in all cable trays and securely clamped to each tray section by suitable connections to form a continuous earthing system. When two (or) more trays supporting power cables run parallel, a continuous earthing conductor shall be provided on one tray only with tap offs to the control cable trays.
- 7) All joints in the earthing system shall be welded type. Earthing connections to all equipment including motor shall be of bolted type.
- 8) Earthing connections shall be free from tinning, scale, paint, enamel, grease, rust (or) dirt at the time of making joint.
- 9) Screens / Shields and armour of all multi core cables shall be bonded and earthed.
- 10) Earthing conductors, along their run on columns, beams, walls etc. shall be supported by suitable cleats to intervals of 750mm.
- 11) Welded joints shall be painted with red oxide and Aluminium paint / Al. paste. Aluminium paint, red oxide and paste are in the scope of contractor.
- 12) Earth lead and riser connections shall be as short and direct as possible and shall be without any links and spacing.
- 13) All earthing works includes laying of earthing flat as per the schematic drawing and termination up to the earthing pit.

## **11. TESTING, PRE-COMMISSIONING, AND POST COMMISSIONING**

- 11.1 The Equipments supplier commissioning Engineer will co-ordinate for all equipments in **Sl.No 3,4,6,7,8,9** told in work schedule. Contractor shall ensure the availability of his technical staff during pre-commissioning activities, integrated testing, post-commissioning stages of equipment covered under this tender specification. It is the responsibility of contractor to arrange tools & plants, test equipments, experienced engineers and technicians for satisfactory commissioning of the system.
- 11.2 The contractor's commissioning group shall work as per the instruction of BHEL Engineer and they shall coordinate day-to-day activity with other agency and BHEL. The testing activity may have to be repeated till satisfactory results are obtained and also to satisfy the requirement of BHEL Engineer.

11.3 The equipments erected by the contractor will be tested and commissioned as per normal testing practices like panel charging, meggering of cables and as per the instruction of BHEL engineers. The contractor will supply required manpower along with all required testing equipments like multi meter, megger, tong testers, test kit etc..

## **12. INTEGRATED ELECTRICAL TESTING/COMMISSIONING**

**12.0 The brief scope of work is mentioned as below.**

12.1 Contractor shall discuss & finalize testing procedure with BHEL Engineer In-Charge for the test to be conducted. Drawing & documents shall be provided by BHEL at the time of testing.

12.2 The contractor shall prepare all erection / commissioning log sheets and protocols / test certificates as per field quality plan. and submit the same to BHEL engineer..

12.3 Contractor's quoted rates for all concerned items shall include Integrated Testing. Some of the testing activities involved are as below and these are not exhaustive.

## **13. LT CUBICAL TYPE MAIN PANELS**

1. Checking of installation for correctness.
2. Mechanical functional checking/ adjustment of individual breaker.
3. Measurement of Insulation resistance of individual breaker, complete switchgear board and combined insulation resistance of individual breaker with cable connected to drives.
4. Testing of Protection Relay, Thermal overload relay, Energy/ Ammeters, Voltmeters, Power factor, frequency, static & dynamic condition of relay.
5. Conducting test such as Insulation Resistance measurement, Ratio, polarity, winding resistance on CT and PT.
6. Checking of electrical control & protection interlock of individual breaker and integration with other system.
7. Provide assistance for checking the electrical operation of individuals breakers from local stations..
8. The contractor shall arrange all the required testing instruments/ test kits for testing.

## **14 SCOPE OF COMMISSIONING OF EQUIPMENT ERECTED BY THE ELECTRICAL CONTRACTOR**

**14.1** While testing and commissioning, if the equipment to which the cabling is connected is observed to be not functioning, it is the responsibility of the contractor to check, establish and demonstrate, in close coordination with the commissioning agencies, that there is no defect in the cabling. The contractor shall depute his supervisor and workmen to assist the commissioning agencies to check the interconnecting cables.

## **15 ELECTRICAL INSPECTORATE'S APPROVAL /STATUTORY INSPECTION**

15.1 Contractor shall prepare necessary drawings of the new installations and get the approvals from CEA for charging of the same as the case may be. Required statutory fees for the electrical

installation is in the scope of BHEL and all other miscellaneous expenses will be in the scope of the contractor.

15.2 Contractor shall ensure legal requirements as per IE Rules and prepare layout in line applicable rule there by obtaining approval from CEA on smooth manner and arrange inspection of concerned Statutory Authority for the installation, testing & commissioning of High / Low voltage equipments covered under the scope of work and including those erected by other agencies and obtain the statutory authorities approval in appropriate format prior to charging of the equipments.

## 16. STANDARDS

Complete erection shall confirm to Indian Electricity Act with latest amendments and also to latest editions of the relevant Indian Standards.

- a) IS: 2274- Code of practice for electrical wiring installation. (System Voltage not exceeding –650 V)
- b) IS:732- Code of practice for electrical wiring installation. (System Voltage not exceeding –650 V)
- c) IS: 732 – Code of practice for earthing.
- d) IS: 3072 – Code of practice for installation and maintenance of switch gears.
- e) The latest edition of IE Act & IE Rules.
- f) Other relevant standards as applicable.
- g) Transformer erection as per relevant IS.

## 17. THE FOLLOWING CONDITIONS ARE ALSO APPLICABLE TO THE ERECTION CONTACTOR.

1. **BHEL shall provide required Hydro, Crane, Flow car, Turbo etc depending on need basis for free of cost.**
2. Transportation of materials from existing storage area (within 500 mtrs) to erection site is under the contractor's scope using facility provided by BHEL .
3. **Channels, angles, earth flats of sizes 50X6,25X3,3mm G.I wire required for cable tray supports/panel supports/ equipment earthing will be provided by BHEL at free of cost.**
4. **Making holes, fabrication, supply and fixing of fasteners, welding, grouting will be under the scope of contractor..**
5. Supply of glands, pin/palm type copper sockets, **gland earthing** materials for termination of cables will be under **contractor's** scope.
6. Supply of electronic earthing materials like copper wire, GI pipes( for earth pit) will be under contractor's scope.
7. Drinking water, Electricity at one Point will be provided by BHEL **free of cost.**

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