



ಭಾರತ್ ಹೆವಿ ಎಲೆಕ್ಟ್ರಿಕಲ್ಸ್ ಲಿಮಿಟೆಡ್
भारत हेवी इलेक्ट्रिकल्स लिमिटेड
Bharat Heavy Electricals Limited
(A Government of India Undertaking)
Electronics Division, Mysore Road, Bangalore - 560 026

External Services Department

TENDER DOCUMENTS & NOTICE INVITING TENDER (NIT)

For the work of

Dismantling of Existing Control & Instrumentation Equipment

And

Erection & commissioning of New Control & Instrumentation equipment

For

One Unit + common systems

At

**NTPC KORBA (3 x 200 MW)
Korba Super Thermal Power Project Stage-1
JAMNIPALI
District Korba
Chattisgarh- 495450**

**Tender Reference: CE:ES:2014-15:05:NTPC_KORBA_R&M:KP
dt. 27/06/2014**

Due Date & Time of Bid Submission:

18-07-2014 at 13:00 Hrs

IMPORTANT NOTE

PURCHASER OF THIS TENDER DOCUMENT IS ADVISED TO CHECK AND ENSURE COMPLETION OF ALL PAGES OF TENDER DOCUMENT AND REPORT ANY DISCREPANCY TIMELY FOR CORRECTIVE ACTION, IF ANY, TO THE ISSUING AUTHORITY BEFORE THE BIDS ARE SUBMITTED. PRINTED COPY OF TENDER DOCUMENT COMPLETE IN ALL RESPECTS MUST BE SUBMITTED BACK AS PART OF THE BID WITHOUT WHICH THE SAME IS LIABLE TO BE REJECTED BY BHEL.

NOTICE INVITING TENDER

Sealed offers in two part bid system are invited from the contractors fulfilling pre-qualification requirements for undertaking the subject work by the undersigned on behalf of BHEL – Electronics Division as detailed in the tender documents. There will be NO sale of bid documents. Bidders shall download the bid document from websites indicated below, fill the same completely and submit the same as stipulated in the tender documents.

TENDER NOTICE

Tender Reference (NIT)	CE:ES:2014-15:05:NTPC_KORBA_R&M:KP dated.27/06/2014		
NAME OF WORK	Dismantling of Existing Control & Instrumentation equipment & shifting to designated location, Receipt of materials from BHEL Stores / Open yard, shifting to place of installation, Erection & Commissioning of supplied C&I equipment for One Unit + Common systems at NTPC Korba Stage 1.		
Place of Work Execution	NTPC-KORBA, STAGE 1, 3 x 200MW, JAMNIPALLI, Distt.-Korba, Chattisgarh-495450		
Tender Type	OPEN TENDER (TWO PART BASIS)		
Earnest Money Deposit	Rs.2,00,000/-(RUPEES TWO LAKH ONLY)		
Estimated Value of the Work	Rs.141 Lakhs		
Tender Fee	Rs.2000/- (RUPEES TWO THOUSAND ONLY)		
Web Site for Tender Details	www.bhel.com , www.bheledn.com www.tenders.gov.in		
Due Date & Time for Tender Submission	18.07.14 13:00 Hours		
Date & Time of Techno-commercial BID Opening	18.07.14. 13:30 Hours		
Address for Communication	K.PARTHASARATHY DGM / External Services 5 th Floor, New Engineering Building BHEL – Electronics Division, Mysore Road, Bangalore 560 026 Karnataka		
Contact details	Phone :	FAX :	
	+91 80 26989031	+91 80 26989222	+91 80 26989217
	Email : kparthasarathy@bheledn.co.in		

Note:

1. The offer shall be submitted as per the instructions of tender document and as detailed in the NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences, if any, shall be submitted by them duly signed & stamped on each page, as a part of the offer. Offer containing rates / Prices including discount / rebates, if any, mentioned anywhere / in any form in the techno- commercial offer other than the price bid shall not be entertained.
2. Bidders intending to participate may download the tender document from the web site. Bidders shall remit Rs. 2000/- (Rupees Two thousand only) in the form of crossed demand draft (non - refundable), in favor of "BHEL" payable at Bangalore along with their offer.
3. **PROCEDURE FOR SUBMISSION OF TENDERS:**

The Bidders must submit their tenders as required in three parts in separate sealed covers prominently super scribed as 1. "**Techno-commercial bid**" 2. "**Price bid**" & 3. "**EMD**" also indicating on each of the covers, the tender specification number, due date and time as mentioned in tender notice.

TECHNO-COMMERCIAL BID (Cover 1)

This should include the complete set of tender documents included in Part I of tender consisting of

- i. Tender Notice
- ii. General Conditions of contract,
- iii. General Terms & Conditions
- iv. Special Conditions of Contract, Parts A & B
- v. Terms & Conditions of reverse Auction

All schedules, data sheets and details called for in the specifications shall also be submitted along with the Techno-Commercial Bid. All details / Data / Schedules including offer letter duly signed, stamped and properly compiled are to be **submitted in duplicate**.

PRICE BID (Cover 2)

Bidders may please note that price bid is to be submitted only in original format of Tender i.e. Price bid - Part-II issued by BHEL.

EARNEST MONEY DEPOSIT AND TENDER FEE (Cover 3)

The EMD amount & Tender fee need to be submitted in this cover.

MAIN COVER (Cover 4)

These three separate covers i.e. cover 1, 2 & 3 shall together be enclosed in a fourth envelope (Cover-4) and this sealed cover shall be super scribed with Tender Reference Number, due date & Time and submitted to the Officer inviting tender as indicated in tender notice on or before due date.

4. No Deviation with respect to the tender clauses and no additional clauses / suggestions / in techno-commercial bid / price bid shall normally be considered by BHEL.
5. BHEL reserves the right to reject any Tender or all the tenders for reasons whatsoever beyond its control and decision of BHEL is final. No correspondence will be entertained in this regard (except for refund of EMD).
6. Before submission of offers, the Bidders are advised to inspect the site of work and the environments and be acquainted with the actual working and other prevalent conditions, facilities available, position of material and labour. No claim will be entertained later on grounds of lack of knowledge. (Refer **Annexure-4**).
7. The Bidders shall closely peruse all the clauses, specifications and drawings indicated in the Tender Documents before quoting. Should the Bidder have any doubt about the meaning of any portion of the Tender Specifications or find discrepancies / omission in the Drawings or the tender documents issued are incomplete or shall require clarification on any of the technical aspect, scope of work etc., including any typing error / missing pages / other clerical error, Bidder may seek the same in writing (2 copies) together with soft version (through email), on or before **03/07/2014**, from the authority inviting the tender for clarification. BHEL shall not be responsible for receipt of queries after **04/07/2014** & BHEL's interpretation shall prevail.
8. Only Bidders who have previous experience in the work of this nature and description detailed in this tender specification are expected to quote for this work. Offers from Bidders who do not have proven and established experience in the field are not likely to be considered.

9. Validity of the offer shall be for Three months (90 days) from the date of opening of tender. In case BHEL calls for negotiations, such negotiations shall not amount to cancellation or withdrawal of the original offer which shall be binding on the Bidders.
10. BHEL reserves the right to decide the successful bidder on the basis of reverse auction process. In such case all the qualified bidders will be intimated regarding the procedure / modality of the reverse auction prior to reverse auction and the Price will be decided as per the rules for reverse auction. However if Reverse auction process is unsuccessful, then the sealed price bid will be opened for deciding the successful bidder. BHEL's decision in this regard will be final and binding on the bidder.
11. BHEL takes no responsibility for any loss / delay of documents or correspondences sent by courier / post.
12. **The requests for Extension in due date will not be considered as it is a shutdown dependent work.**

DGM (External Services)

INDEX

Sl.No.	CONTENTS	Page No.	No. of Pages
1.	Cover Sheet	1	1
2.	Notice Inviting Tender	2	3
3.	Index	5	1
4.	Pre-Qualification Requirement	6	1
5.	Check List and schedule of general particulars	7	1
6.	Part I : Techno-Commercial Bid	8	1
7.	Project synopsis	9	1
8.	Section-I – General Conditions Of Contract	10	3
9.	Section-II – General Terms and Conditions	13	9
10.	Section-III - Special Conditions of Contract - Part-'A'	22	8
11.	Section-III - Special Conditions of Contract - Part-'B'	30	13
12.	Terms & Conditions of Reverse Auction	43	1
13.	ANNEXURES		
14.	Annexure-1 List of Material / Bill of Quantities	44	8
15.	Annexure-1a Indicative list of Panels to be removed	52	1
16.	Annexure-2 Offer Forwarding / Tender Submission Letter	53	1
17.	Annexure-3 No Deviation Certificate	54	1
18.	Annexure-4 Declaration for conforming knowledge about site conditions.	55	1
19.	Annexure-5 Declaration for Relation in BHEL	56	1
20.	Annexure-6 Non-Disclosure Agreement	57	1
21.	Annexure-7a Indicative List of T&P to be arranged by Contractor.	58	1
22.	Annexure-7b Indicative list of IMTE to be arranged by the contractor for C&I calibration laboratory to be setup at site	59	1
23.	Annexure-8 Financial Viability	60	1
24.	Annexure-9 Analysis of Jobs Executed / In progress	61	1
25.	Annexure-10 Status of tools & Tackle and Month wise T&P deployment plan	62	1
26.	Annexure-11 Month wise Manpower Deployment Plan	63	1
27.	Annexure-12 Analysis of unit Rate quoted	64	1
28.	Annexure-13 Declaration by Authorised Signatory of Bidder	65	1
29.	Annexure-14 Format of Bank Guarantee for Security Deposit	66	3
30.	Annexure-15 Format for Power of Attorney for Submission of Tender / signing of Contract Agreement	69	1
31.	Annexure-16 Format for claim of refund for Security Deposit	70	2
32.	Annexure-17 Format of Declaration to be given along with Final Bill	72	1
33.	Annexure-18 Electronic Fund Transfer / Pay Link Direct Credit Form	73	1
34.	Annexure-19 Format for CONTRACT AGREEMENT	74	3
35.	Annexure-20 Checklist to be submitted along with each RA bill	77	1
36.	Annexure-21 Relevant IS-Codes for personal protection	78	1
37.	Part II Price Bid	79	1
38.	Rate Schedule	80	16

PRE-QUALIFICATION REQUIREMENT:

Sl. No.	REQUIREMENT
1.	<p>Bidders participating must have executed Erection and commissioning of Control and Instrumentation System in a Thermal Power Plant of 100MW or above</p> <p style="text-align: center;">OR</p> <p>Completed Renovation & Modernisation work of Control & Instrumentation system in a power plant of 60 MW Unit or higher capacity</p> <p style="text-align: center;">OR</p> <p>Should have experience in Works in a Power plant including Field instrument erection, cabling and Panel installation.</p> <p>Bidders to furnish details of completion of such works done in last Seven years ending 31/03/2014.</p>
2.	<p>Average annual financial turn over during the last 3 years, ending 31st March of the previous financial year, should be Rs. 42.30 Lakhs (Rupees Forty Two Lakhs Thirty Thousand only).</p> <p>Latest Bankers Certificate from Nationalized / Scheduled Bank issued not earlier than 12 months from the final date of Tender submission for value not less than Rs 14.10 lakhs (Rupees Fourteen Lakhs Ten Thousand only)</p>
3.	<p>Experience of having successfully completed works during last 7 years from the date of tender notice should be either of the following</p>
a.	<p>Three completed works (E & C of Control & Instrumentation) each costing not less than an amount equal to 40% of estimated value mentioned against each work in the tender notice</p>
	OR
b.	<p>Two completed works each costing not less than an amount equal to 50% estimated value mentioned against each work in the tender notice</p>
	OR
c.	<p>One (E & C of Control & Instrumentation) completed works each costing not less than an amount equal to 80% estimated value mentioned against each work in the tender notice.</p>

For this work, Bidder selection is subject to the review by BHEL's Customer i.e **M/s.NTPC, Korba STPP, Stage 1, Korba (CG)**.

CHECKLIST AND SCHEDULE OF GENERAL PARTICULARS

NOTE : Bidders are requested to fill in the following details and no column should be left blank

1.	Name and Address of the Bidder	
2.	Name & designation of the officials of the Bidder to whom all the references shall be made	
3.	Phone No. - Office	
4.	Fax No.	
5.	Mobile no. :	
	Email ID	
6.	Bidder's Proposal No. & date	
7.	Whether EMD submitted (By cash / Pay order / Bank Draft)	Yes / No
8.	Validity of offer / rates quoted for Three months (90 days) from the date of opening of Tender	Yes / No
9.	No Deviation certificate (as per annexure 3)	Yes / No
10.	Declaration regarding Site conditions (as per annexure-4)	Yes / No
11.	Copy of PAN (income tax) card	Yes / No
12.	Declarations for relation in BHEL (as per annexure-5)	Yes / No
13.	Non-Disclosure Agreement – MOU (as per annexure-6)	Yes / No
14.	Status of Tools & Plant and Deployment plan (as per annexure 10)	Yes / No
15.	Financial Viability (as per annexure 8)	Yes / No
16.	Details of Experience (as per annexure-9)	Yes / No
17.	EFT / Pay link direct credit Form (as per annexure-18)	Yes / No
18.	Status of Manpower & deployment plan (as per annexure 11)	Yes / No
19.	Analysis of unit rate quoted (as per annexure-12)	Yes / No
20.	Declaration sheet (as per Annexure-13)	Yes / No
21.	Declaration by authorized signatory & Attested copy of power of attorney. (as per annexure-15)	Yes / No

(AUTHORISED SIGNATORY)
(With Name, Designation & Company Seal)

Date:
Place:



PART - I

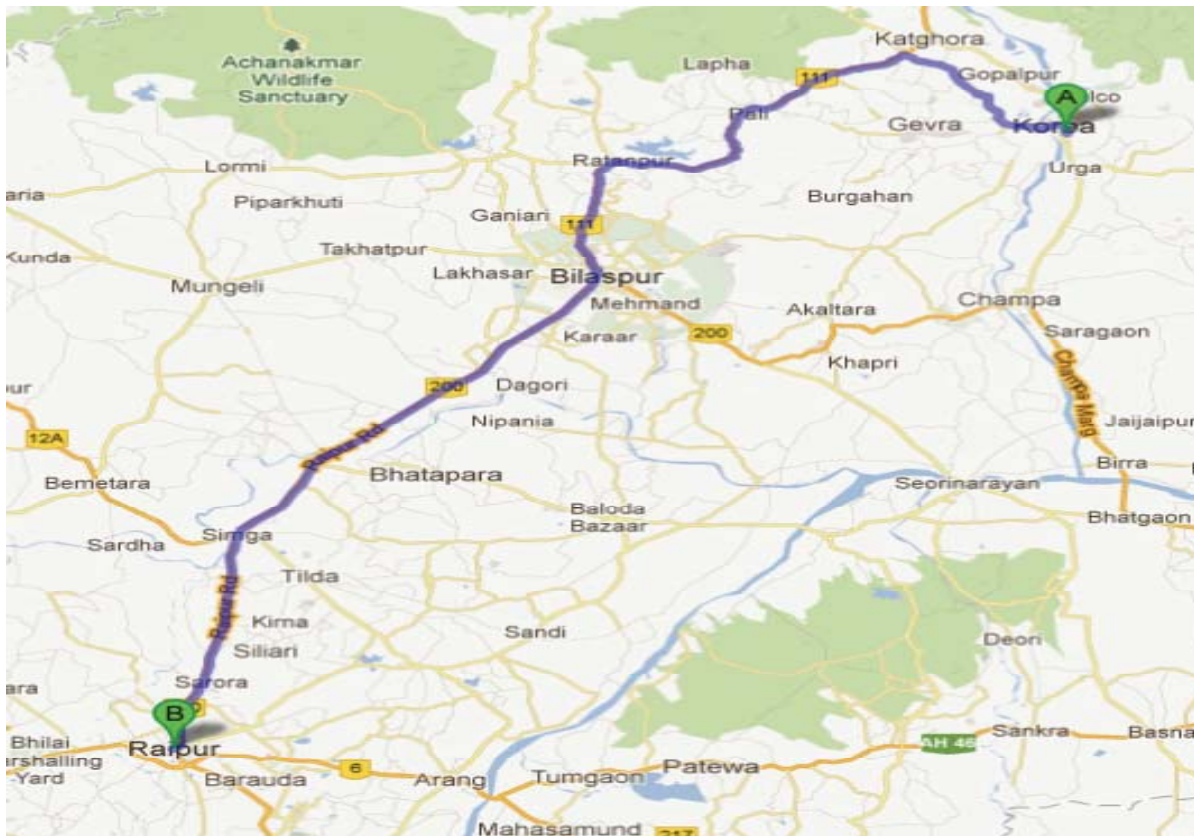
TECHNO-COMMERCIAL BID

PROJECT SYNOPSIS

Korba Super Thermal Power Project, a pit head coal based thermal power project, is located in Korba District of Chattisgarh state.

BHEL has been awarded the work of supply, material receipt, storage preservation, erection, testing and commissioning of stage I (3 x 200MW) Unit-1,2 & 3 renovation and modernization of C & I system by NTPC. The site location, approach & map is reproduced below:

The site is located on the western bank of river Hasdeo near Korba town in Korba district of Chhattisgarh state. The site is contiguous to the right bank irrigation canal originating from Hasdeo barrage. BALCO Aluminium plant and two power stations are already located on both the banks of Hasdeo river vicinity. Korba town is a broad gauge railhead 37 km away from Champa railway station on Kolkata – Nagpur main line of South-Eastern Central railway and is approximately 510 km from Nagpur by rail. The site is very close to all weather road between Katghora & Korba and is approximately 110 km from Bilaspur and 10 Km from Korba Town. The nearest airport is Raipur located at a distance of approximately 250km from the project site.



Note: Bidders are advised to visit the project / site and collect adequate information regarding the local site conditions.

SECTION - I: GENERAL CONDITION OF THE CONTRACT (GCC)

Clause No	DESCRIPTION
1.	Bidder must fill up all the schedules and furnish all the required information as per the instructions given in various sections of the tender specification. Each and every page of the Tender Specification must be SIGNED, STAMPED AND SUBMITTED ALONG WITH THE OFFER by the Bidder in token of complete acceptance thereof. Tenders shall be signed by persons duly authorized / empowered to do so. Certified copies of such authority and relevant documents shall be submitted along with the tenders. No page of the tender document shall be removed / altered and the whole set of tender documents as down loaded from the web sites must be submitted.
2.	Tenders submitted by post shall be sent as " REGISTERED / SPEED / COURIER POST " and shall be posted with due allowance for any postal delay. The tender received after the due date and time of opening will be considered as LATE tender and shall not be considered under any circumstances.
3.	This tender specification as a whole, furnishing all the details and other documents as required in the following pages, shall be duly signed and sent in a sealed cover (IN DUPLICATE) super-scribing the name of work, tender reference and due date as given in the tender notice and shall be addressed to OFFICER INVITING TENDER AS PER INSTRUCTIONS IN THE TENDER NOTICE.
4.	The Tender is for Activities of R&M of Control and Instrumentation system as per Bill of Material indicated in Annexure 1 . BIDDERS have to quote for all activities. The Total contract period is for duration of 8 Months for the activities specified in tender, from ZERO date of Contract. The price quoted will be FIRM for the entire Contract period. BHEL reserves the Right to renew the contract Or terminate depending on the Progress of Work and performance of the Contractor during the contract period
5.	All corrigenda, addenda, amendments and clarifications to this tender will be hosted in these web pages. Bidders shall keep themselves updated with all such amendments.
6.	The Bidder shall quote the rates in English Language and international numerals. These rates shall be entered in figures as well as in words. In case of difference in rates between words and figures THE LESSER OF THE TWO will be treated as valid rate. For the purpose of tender, the metric system of units shall be used.
7.	All entries in the tender shall either be typed or be written in ink. Erasure and over writings are not permitted and may render such tenders liable to summary rejection. All cancellations and insertions shall be duly attested by the Bidder.
8.	Tenders shall be opened at the time and date as specified in the tender notice in the presence of such of those Bidders or their authorized representatives who may be present.
9.	Offers from Bidders who do not have proven and established experience in the field shall not be considered. Offers from Bidders who are banned by any unit / region / division of BHEL shall not be considered.
10.	DATA TO BE ENCLOSED: Full information shall be given by the Bidder in respect of the following. Non submission of these information may lead to rejection of the offer :
10.1.	FINANCIAL STATUS: Financial viability as per proforma enclosed at ANNEXURE-8' . (Copy of Audited Annual accounts for the preceding three assessment years or if not audited annual accounts for the preceding three financial years is to be enclosed.)
10.2.	INCOME TAX PERMANENT ACCOUNT NUMBER: Certified copies of permanent account number as allotted by Income Tax Department for the company / Firm / Individual Partners etc shall be furnished along with the tender.
10.3.	PREVIOUS EXPERIENCE: A certificate giving details / particulars (giving documentary evidence) of the various services rendered for each works by the Bidder indicating the particulars as per proforma enclosed at ANNEXURE-9 .
10.4.	ORGANISATION CHART: The organization pattern that are totally available with him and that will be employed by the Bidder for this work in the form of month wise and category wise deployment plan duly indicating the number of Engineers, Supervisors, skilled and unskilled workers etc., as per proforma enclosed at ANNEXURE-11' .
10.5.	In case of an Individual : His Full name experience ,address and nature of business OR IN CASE OF PARTNERSHIP FIRMS: The names of all the partners with addresses and their experience. A copy of the partnership deed/ instrument of Partnership duly certified by a Notary Public shall be enclosed. OR IN CASE OF COMPANIES: Date and place of registration including date of commencement certificate in case of public companies and the nature of business carried or by the Company. Certified copies of memorandum and Articles of Association are also to be furnished. Also indicate names, addresses and experience of the Directors.
10.6.	A list of tools and tackles (including cranes, tractor-trailers, winches, Derricks, welding sets etc., wherever applicable) that the Bidder is having and those that will be deployed on this job as per proforma enclosed at ANNEXURE-10' .
10.7.	Analysis of Unit rate quoted as per proforma enclosed at ANNEXURE-12' .
10.8.	Declaration sheet regarding bid details and authorisation (including power of attorney) as per proforma enclosed at ANNEXURE-13 & 15' .
11.	EARNEST MONEY DEPOSIT: Every tender must be accompanied by the prescribed amount of Earnest Money Deposit in any

Clause No	DESCRIPTION								
	one of the following forms								
11.1.	Cash (As permissible under Income Tax Act): The amount should be remitted by the party to the Cashier of Bharat Heavy Electricals Limited, EDN Bangalore and cash receipt issued by him shall be enclosed along with the tender.								
11.2.	Pay Order or Demand Draft in favour of Bharat Heavy Electricals Limited, Bangalore.								
	NOTE: Bank Guarantee, Cheque, Currency Notes, Money Orders or Postal Orders will not be accepted								
11.3.	Tenders received without Earnest Money in full in the manner prescribed above will not be considered.								
11.4.	The Earnest Money Deposit of the successful Bidder will be retained towards part of Security Deposit.								
11.5.	In the case of unsuccessful Bidders, the Earnest Money will be refunded normally within fifteen days of unconditional acceptance of award of work by the successful Bidder.								
11.6.	BHEL reserves the right of forfeiture of Earnest Money deposit in case the successful Bidder,								
11.6.1.	After opening of Tender, revokes his tender within the validity period or increases his earlier quoted rates.								
11.6.2.	Does not commence the work within the period as per LOI / Contract. In case the LOI / Contract is silent in this regard then within 15 days after award of contract.								
11.7.	EMD shall not carry any interest.								
11.8.	Bidders, whomsoever desire, may deposit one time Earnest Money Deposit of Rs. 2,00,000/- in cash (As permissible under Income Tax Act) / DD / pay order only with the cashier of BHEL. Bidders, who furnish one time EMD as above, will not be required to furnish EMD time and again along with their tenders submitted to BHEL/ Bangalore. However they will be required to indicate the cash receipt No. and date of one time EMD in all their tenders. EMD provided against any other tender shall not be adjusted either partly or fully against this tender.								
12.	SECURITY DEPOSIT: Upon acceptance of tender, the successful Bidder must deposit the required amount of security deposit within the time specified in the Letter of Intent for satisfactory completion of work.								
12.1.	The total amount of Security Deposit shall be as follows :								
	<table border="1"> <thead> <tr> <th>Contract Value</th> <th>Security Deposit Amount</th> </tr> </thead> <tbody> <tr> <td>12.1.1. Up to INR 10 lakhs</td> <td>10% of the contract value.</td> </tr> <tr> <td>12.1.2. Above INR 10 lakhs and up to INR 50 lakhs</td> <td>INR 1 Lakh + 7.5 % of the amount exceeding INR 10 Lakhs</td> </tr> <tr> <td>12.1.3. Above INR 50 lakhs</td> <td>INR 4 Lakhs + 5 % of the amount exceeding INR 50 Lakhs</td> </tr> </tbody> </table>	Contract Value	Security Deposit Amount	12.1.1. Up to INR 10 lakhs	10% of the contract value.	12.1.2. Above INR 10 lakhs and up to INR 50 lakhs	INR 1 Lakh + 7.5 % of the amount exceeding INR 10 Lakhs	12.1.3. Above INR 50 lakhs	INR 4 Lakhs + 5 % of the amount exceeding INR 50 Lakhs
Contract Value	Security Deposit Amount								
12.1.1. Up to INR 10 lakhs	10% of the contract value.								
12.1.2. Above INR 10 lakhs and up to INR 50 lakhs	INR 1 Lakh + 7.5 % of the amount exceeding INR 10 Lakhs								
12.1.3. Above INR 50 lakhs	INR 4 Lakhs + 5 % of the amount exceeding INR 50 Lakhs								
12.2.	The Security Deposit will be deposited within 15 days from the date of issue of Letter of Intent but before start of work in any one of the following forms :-								
12.2.1.	The total Security Deposit as indicated in the Letter of Intent in cash (As permissible under Income Tax Act).								
12.2.2.	Pay Order, Demand Draft in favour of BHEL.								
12.2.3.	Local cheques of scheduled banks, subject to realization.								
12.2.4.	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).								
12.2.5.	Bank Guarantee from Scheduled Banks / Public Financial Institutions as defined in the Companies Act subject to a maximum of 50% of the total security deposit value. The balance 50% has to be remitted either by cash or in the other form of security. The Bank Guarantee format should be as per BHEL proforma (refer ANNEXURE-14).								
12.2.6.	Fixed Deposit Receipt 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.								
12.2.7.	Security deposit can 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 start of the work and the balance 50% may be recovered from the running bills.								
12.2.8.	EMD of the successful Bidder shall be converted and adjusted against the security deposit.								
	NOTE: Acceptance of Security Deposit against Sl. No. 12.2.4 and 12.2.6 above will be subject to hypothecation or endorsement on the documents in favor of 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.								
12.3.	The security deposit shall not carry any interest.								
12.4.	Security deposit shall not be refunded to the contractor except in accordance with the terms of the contract.								
12.5.	The validity of the Bank Guarantee furnished towards Security Deposit under 12.2.5 above shall be up to the period of completion of work as stipulated in the Letter of Intent + 6 month and the same will be kept valid by proper renewal till the satisfactory completion of the Guarantee Period.								
12.6.	If the value of the work done at any time exceeds the accepted agreement value, the Security Deposit shall be correspondingly enhanced and the extra Security Deposit shall be immediately deposited by the Contractor or recovered from payments due to him.								
12.7.	Failure to deposit the Security Deposit within the stipulated time, may lead to forfeiture of Earnest Money Deposit and Cancellation of the award of work.								
12.8.	If any part of Security Deposit of the Contractor is held in the form of approved securities, it shall be kept transferred in the name of Bharat Heavy Electricals Limited, in such a manner that the same can be realized fully without referring to the Contractor. BHEL shall not be responsible for any depreciation in the value of the Security while in BHEL's custody or for any loss of interest thereon.								
12.9.	BHEL reserves the right of forfeiture of Security Deposit in addition to other claims and penalties in the event of the contractor's failure to fulfill any of the contractual obligations or in the event of termination of contract as per terms and conditions of								

Clause No	DESCRIPTION
	contract. BHEL reserves the right to set off the Security Deposit, against any claims of any other contracts with BHEL.
12.10.	RETURN OF SECURITY DEPOSIT : If the contractor fully performs and completes the work in all respects to the entire satisfaction of BHEL and presents an absolute "No Demand Certificate" in the prescribed form and returns properties belonging to BHEL taken, borrowed or hired by him for carrying out the said works, half the amount of Security Deposit will be released to the contractor after deducting all costs, expenses and other amounts that are to be paid to BHEL under this or other contracts entered into with the Contractor. It may be noted that in no case the Security Deposit shall be refunded / released prior to passing of final bill. Balance half of the amount of Security Deposit will be released only after the Guarantee Period is over.
13.	The Bank guarantees are to be submitted as per BHEL formats. In case the bank guarantees are not extended before the expiry date, BHEL reserves the right to invoke the same, without any advance notice / communication to the concerned bidder. BHEL shall not be liable for issue of any reminders regarding the expiry of bank guarantee.
14.	EXECUTION OF CONTRACT : The successful Bidders responsibility, under this contract, commences from the date of issue of the Letter of Intent by Bharat Heavy Electricals Limited. The Bidder shall submit an unqualified acceptance to the letter of intent / Award within the stipulated time. The successful Bidder shall be required to execute an agreement in the prescribed form with the BHEL within a reasonable time after the acceptance of his tender and in any case before submitting the first bill for payment.
15.	REJECTION OF TENDER AND OTHER CONDITIONS:
15.1.	The acceptance of Tender will rest with BHEL which does not bind itself to accept the lowest tender or any tender and reserves to itself full rights for the following without assigning any reasons whatsoever.
15.1.1.	To reject any or all of the tenders.
15.1.2.	To split up the work amongst two or more Bidders.
15.1.3.	To award the work in part.
15.1.4.	In either of the contingencies stated in 15.1.2 and 15.1.3 above to modify the time for completion suitably.
15.2.	Conditional and un-witnessed tenders, tenders containing absurd or unworkable rates and amounts, tenders which are incomplete or otherwise considered defective and tenders not in accordance with the tender conditions, specifications, etc., are liable to be rejected.
15.3.	If a Bidder expires after the submission of his tender or after the acceptance of his tender, BHEL may at its discretion, cancel such tender. If a partner of a firm expires after the submission of the tender or after the acceptance of the tender, BHEL may cancel such tender at its discretion unless the firm retains its character.
15.4.	BHEL will not be bound by any Power of Attorney granted by the Bidder or by changes in the composition of the firm made subsequent to the execution of the contract. BHEL may, however, recognize such Power of Attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the contractor concerned.
15.5.	If the Bidder deliberately gives wrong information in his tender, BHEL reserves the right to reject such tender at any stage or to cancel the contract, if awarded and forfeit the Earnest Money/ Security Deposit/ any other moneys due.
15.6.	Canvassing in any form in connection with the tender is strictly prohibited and the tenders submitted by the contractor who resorts to canvassing are liable to be rejected.
15.7.	Should a Bidder or contractor or in the case of a firm or Company of contractors / one or more of its Partners / shareholders / Directors have a relation or relations employed in BHEL, the authority inviting tender shall be informed to the fact along with the offer (refer ANNEXURE – 5), failing this BHEL may, at its sole discretion reject the tender or cancel the contract and forfeit the Earnest Money / Security Deposit.
15.8.	The successful tender should not sub-contract the part or complete work detailed in the tender specification without written permission of BHEL. The Bidder is solely responsible to BHEL for the work awarded to him.
15.9.	Bids once submitted, shall not be returned. However unopened price bids and Late tenders shall be returned to the bidders.
15.10.	Unsolicited rebate / discount shall NOT be accepted after bid opening.
15.11.	NO DEVIATIONS to the tender conditions will normally be accepted (refer Annexure-3).

SECTION - II : GENERAL TERMS AND CONDITIONS

Clause No	DESCRIPTION
16.	DEFINITIONS: The following terms and expressions shall have the meaning hereby assigned to them except where the context otherwise requires.
16.1.	BHEL (or B.H.E.Ltd.) shall mean Bharat Heavy Electricals Limited, a Company registered under the Indian Companies Act, 1956, with its Registered Office at BHEL HOUSE, SIRI FORT, NEW DELHI-110049 or its authorized officers or its Engineer or other employees authorized to deal with any matters with which these persons are concerned, on its behalf.
16.2.	'EXECUTIVE DIRECTOR', 'GENERAL MANAGER (GM)' shall mean the Officer in Administrative charge of the contracting Unit of BHEL.
16.3.	'ENGINEER' or 'ENGINEER-IN-CHARGE' shall mean Engineer deputed by BHEL. The terms include Deputy General Manager, Construction Manager, Resident Manager, Site Engineer, Resident Engineer and Assistant Site Engineer of BHEL at the site as well as the officers in charge at Head Office.
16.4.	'SITE' shall mean the place or places at which the plants/ equipment are to be erected and services are to be performed as per the specifications of this Tender.
16.5.	'CLIENTS OF BHEL' or 'CUSTOMER' shall mean the project authorities to whom BHEL is supplying the equipment.
16.6.	'CONTRACTOR' shall mean the individual, firm or company who enters into contract with BHEL and shall include their executors, administrators, successors and permitted assigns.
16.7.	'CONTRACT' or 'CONTRACT DOCUMENT' shall mean and include the agreement, the work order, the accepted appendices of rates, Schedules of Quantities, if any, General Conditions of Contract, Special Conditions of Contract, Instructions to Bidders, the drawings, the technical specifications, the special specifications, if any, the tender documents and the Letter of Intent / Acceptance letter issued by BHEL. Any conditions or terms stipulated by the Bidder in the tender documents or subsequent letters shall not form part of the Contract unless specifically accepted in writing by BHEL in the Letter of Intent and incorporated in the Agreement.
16.8.	'GENERAL CONDITIONS OF CONTRACT' shall mean the 'Instructions to Bidders' and 'General Conditions of Contract' pertaining to the work detailed.
16.9.	'TENDER SPECIFICATIONS' shall mean the Special Conditions, Technical Specifications, price BID / RATE SCHEDULE, appendices, Site information and drawings pertaining to the work for which the Bidder are required to submit their offer. Individual Specifications Number will be assigned to each tender specification.
16.10.	'TENDER DOCUMENTS' shall mean the General Conditions of Contract (19.8) and Tender Specifications (19.9).
16.11.	'LETTER OF INTENT' shall mean the intimation by a letter / telegram / telex / fax to the Bidder that the tender has been accepted in accordance with provisions contained in the letter. The responsibility of the contractor commences from the date of issue of this letter and all the terms and conditions of contract are applicable from this date.
16.12.	'COMPLETION TIME' shall mean the period by date specified in the Letter of Intent or date mutually agreed upon for handing over the erected equipment/ plant which are found acceptable by the Engineer being of required standard and conforming to the specifications of the Contract.
16.13.	'PLANT' shall mean and connote the entire assembly of the plant and equipment covered by the Contract.
16.14.	'EQUIPMENT' shall mean all equipment, machineries, materials, structural, electrical and other components of the plant covered by the Contract.
16.15.	'TESTS' shall mean and include such test or tests to be carried out by the contractor as are prescribed in the Contract or considered necessary by BHEL in order to ascertain the quality, workmanship, performance and efficiency of the contracted work or part thereof.
16.16.	'APPROVED', 'DIRECTED' or 'INSTRUCTED' shall mean approved, directed or instructed by BHEL.
16.17.	'WORK' or 'CONTRACT WORK' shall mean and include supply of all categories of labor, specified consumables, tools and tackles required for complete and satisfactory site transportation, handling, stacking, storing, erecting, testing and commissioning of the equipment to the entire satisfaction of BHEL.
16.18.	'SINGULAR' and 'PLURAL' etc. Words carrying singular number shall also include plural and vice versa where the context so requires. Words importing masculine gender shall be taken to include the feminine gender and words importing persons shall include any Company or association or Body of Individuals, whether incorporated or not.
16.19.	'HEADINGS' The headings in these General Conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.
16.20.	'MONTH' shall mean calendar month unless otherwise specified in the tender.
16.21.	'DAY' or 'DAYS' unless herein otherwise expressly defined shall mean calendar day or days of twenty four (24) hours each. A week shall mean a continuous period of seven (7) days.
16.22.	'COMMISSIONING' shall mean the synchronization, testing and achieving functional operation of the equipment with the associated system after all initial adjustments, trials, cleaning, re-assembly required at site if any, have been completed and equipment with associated system is ready for taking into service.
16.23.	'WRITING' shall include any manuscript, type written or printed statement under the signature or seal as the case may be.
16.24.	'TEMPORARY WORK' shall mean all temporary works for every kind required in or for the execution, occupation, completion maintenance of the work.
16.25.	'CONTRACT PRICE' or 'CONTRACT VALUE' shall mean the sum mentioned in the LOI / LOA / contract agreement subject to

Clause No	DESCRIPTION
	such additions thereto or deductions there from as may be made under provisions herein after contained.
16.26.	'COMMENCEMENT DATE' or 'START DATE' shall mean the commencement / start of work at site as per terms defined in the tender.
16.27.	'SHORT CLOSING' or 'FORE CLOSING' of contract shall mean the premature closing of contract, for reasons not attributable to the contractor and mutually agreed between BHEL and the contractor.
16.28.	'TERMINATION' of contract shall mean the premature closing of the contract due to reasons as mentioned in the contract.
16.29.	'DE-MOBILISATION' shall mean the temporary winding up of site establishment by contractor leading to suspension of works temporarily for reasons not attributable to the contractor.
16.30.	'RE-MOBILISATION' shall mean the resumption of work with all resources required for the work after de-mobilisation.
17.	LAW GOVERNING THE CONTRACT AND COURT JURISDICTION
	The Contract shall be governed by the Law for the time being in force in the Republic of India. The Civil Court at Bangalore, having ordinary Original Civil Jurisdiction shall alone have exclusive jurisdiction in regard to all claims in respect of this Contract
18.	ISSUE OF NOTICE : The Contractor shall furnish to the Engineer, the name, designation and address of his authorized agent and all complaints, notices, communications and references shall be deemed to have been duly given to the Contractor, if delivered to the Contractor or his authorized agent or left at or posted to the address either of the contractor or his authorized agent and shall be deemed to have been so given in the case of posting on the day on which they would have reached such address in the ordinary course of post or at which they were so delivered or left.
19.	USE OF LAND : No land belonging to BHEL or BHEL's customer under temporary possession of BHEL shall be occupied by the Contractor without the written permission of BHEL.
20.	COMMENCEMENT AND COMPLETION OF WORK:
20.1.	The indicated schedule of shut down for R&M of Control & Instrumentation activity commencement, as announced by BHEL'S CUSTOMER is TENTATIVE and the Schedule is likely to be advanced or postponed depending on requirements.
20.2.	The contractor shall commence the work within the time indicated in the Letter of Intent and shall proceed with the same with due expedition without delay.
20.3.	If the successful Bidder fails to commence the work within the stipulated time, BHEL, at its sole discretion, will have the right to cancel the contract. His Earnest Money and/ or Security Deposit will stand forfeited without any further reference to him without prejudice to any and all of BHEL's other rights and remedies in this regard.
20.4.	All the works shall be carried out under the direction and to the satisfaction of BHEL.
20.5.	The equipment erected / constructed plant or work performed under the Contract, as the case may be, shall be taken over when it has been completed in all respects and / or satisfactorily put into operation at site.
21.	MEASUREMENT OF WORK AND MODE OF PAYMENT
21.1.	All payments due to the contractor shall be made by EFT. (Refer Annexure-18 for details to be furnished)
21.2.	For progress / running bill payments, the contractor shall present detailed measurement sheets in triplicate duly indicating all relevant details based on technical documents and connected drawings for the work done during the month/ period under different categories in line with terms of payment as per Letter of Intent. The basis of arriving at the quantities/ weights shall be the relevant documents and drawings released by BHEL. These measurement sheets shall be prepared jointly with Engineer and signed by both the parties.
21.3.	These measurement sheets will be checked by the Engineer and quantities and percentages eligible for payment under different groups shall be decided by him. The abstract of quantities and percentages so arrived at based on the terms of payment shall be entered in the Measurement Book and signed by both the parties.
21.4.	Based on the above quantities, contractor shall prepare the bills in the prescribed proforma and work out the financial value. These will be entered in the Measurement Book and signed by both the parties. Payment shall be made by BHEL after effecting the recoveries due from the contractor.
21.5.	All recoveries due from the contractor for the month / period shall be affected in full from corresponding running bills unless specific approval from competent authority is obtained to the contrary.
21.6.	Measurement shall be restricted to that quantity for which it is required to ascertain the financial liability of BHEL under this contract.
21.7.	Measurement shall be taken jointly by persons duly authorized by BHEL and the Contractor.
21.8.	The Contractor shall bear the expenditure involved, if any, in making the measurements and testing of materials to be used/ used in the work. The Contractor shall, without extra cost to BHEL, provide all the assistance with appliances and other things necessary for measurement.
21.9.	If, at any time due to any reason whatsoever, it becomes necessary to re measure the work done, in full or in part, the expenses towards such re measurement shall be borne by the Contractor.
21.10.	Passing of bills covered by such measurements does not amount to acceptance by BHEL of the completion of the work measured. Any left out work has to be completed by the Contractor, as directed.
21.11.	Final measurement bill shall be prepared in the proforma prescribed for the purpose, based on the certificate issued by the Engineer that the entire work as stipulated in the tender specifications has been completed in all respects to the entire satisfaction of BHEL. The Contractor shall give unqualified 'No Claim' and 'No Demand' certificates. All the tools and tackles loaned to him should be returned in condition satisfactory to BHEL. The abstract of final quantities and financial values shall also be entered in the Measurement Book and signed by both the parties. The final bill shall be paid within a reasonable time after

Clause No	DESCRIPTION
	completion of the work.
22.	RIGHTS OF BHEL: BHEL reserves to itself the following rights in respect of this contract without entitling the Contractor to any compensation.
22.1.	To get the work done through another agency at the risk and cost of the contractor, in the event of poor progress or the contractor's inability to progress the work for completion as stipulated in the contract, poor quality of work, persistent disregard of instructions of BHEL, assignment, transfer, subletting of the contracted work without written permission of BHEL, non-fulfillment of any contractual obligations etc. and to claim / recover compensation for such losses from the contractor including BHEL's supervision charges and overheads from Security Deposit/ other dues.
22.2.	To withdraw any portion of work and / or to restrict / alter quantum of work as indicated in the contract during the progress of work and get it done through another agency and/ or by the departmental labor to suit BHEL's commitments to its customer or in case BHEL decides to advance the completion due to other emergent reasons / BHEL's obligation to its customer.
22.3.	To terminate the contract after due notice and forfeit the Security Deposit and recover the loss sustained in getting the balance work done through other agencies in addition to liquidated damages in the event of:
22.3.1.	Contractor's continued poor progress.
22.3.2.	Withdrawal from or abandonment of the work before completion of the work.
22.3.3.	Corrupt act of the contractor.
22.3.4.	Insolvency of the contractor.
22.3.5.	Persistent disregard of the instructions of BHEL.
22.3.6.	Assignment, transfer, subletting of the contract work without BHEL's written permission.
22.3.7.	Non-fulfillment of any contractual obligations.
22.4.	To recover any moneys due from the Contractor from out of any moneys due to the Contractor under this or any other Contract or from the Security Deposit.
22.5.	To claim compensation for losses sustained including BHEL's supervision charges and overheads in case of termination of contract and to levy liquidated damages for delay in completion of work, at the rate of 0.5% of the contract value per week of delay or part thereof subject to a ceiling of 10% of the contract value.
22.6.	To determine the Contract or to restrict the quantum of work and pay for the portion of work done in case BHEL's contract with its customer is terminated for any reason.
22.7.	To affect recoveries from any amounts due to the contractor under this or any other contract or in any other form the moneys which BHEL is forced to pay to anybody due to contractor's failure to fulfill any of his obligations.
22.8.	To restrict or increase the quantity and nature of work to suit site requirements, since the tender specification is based on preliminary documents and quantities furnished therein are indicative and approximate and the rates quoted shall not be subject to revision.
22.9.	To deploy BHEL's skilled and semiskilled workmen in case of emergency / poor progress/ deficiency in skill on the part of the employees of the contractor and to recover the expenditure on account of the same from the moneys due to the contractor.
22.10.	While every endeavor will be made by BHEL to this end, BHEL cannot guarantee uninterrupted work due to conditions beyond its control. The Contractor will not be entitled to any compensation/ extra payment on this account.
22.11.	In the event of any dispute of technical nature, the decision of BHEL shall be final and binding on the Contractor.
23.	RESPONSIBILITIES OF CONTRACTOR IN RESPECT OF LOCAL LAWS, EMPLOYMENT OF WORKERS, ETC. The following are the responsibilities of the Contractor in respect of observance of local laws, employment of personnel, payment of taxes etc. The contractor shall fully indemnify BHEL / BHEL's customer against all claims of whatever nature arising due to the failure of contractor in discharging any of his responsibilities hereunder:
23.1.	As far as possible, unskilled / skilled workers shall be engaged from the local areas in which the work is being executed. The labour / workers employed towards work execution for this contract shall be subject to police verification (local). In addition to the other formalities for issuing entry permit into the plant, form 5 (inter state migrant labour act) and Form 6 (local migrant labour) also needs to be provided.
23.2.	The contractors at all times during the continuance of this contract, shall in all his dealings with the local labour for the time being employed on or in connection with the work, have due regard to all local festivals, religious and other customs. The minimum wages, Bonus payment, Leave payment as per local procedures to be adopted strictly by the bidder. It is preferred that all Payments to Labour / workers / contractor's employee should be through Bank / Electronic clearing system / Electronic Fund transfer. The P.F even for temporary labour to be paid strictly and documentary proof like payment voucher to be produced every month.
23.3.	The Contractor shall comply with all State and Central Laws, Statutory Rules, Regulations, etc., such as The payment of wages Act, The Minimum Wages Act, The workmen's Compensation Act, The Employer's Liability Act, The industrial Disputes Act, The Employees' Provident Fund Act, Employees' State Insurance Scheme, the Contract Labour (Regulations and Abolition Act, 1970) and other Acts, Rules and Regulations for labour as may be enacted by the Government during the tenure of the Contract and having force or jurisdiction at site. The contractor shall give to the local Governing Body, Police and other concerned Authorities all such notice as may be required under law.
23.4.	The Contractor, in the event of his engaging adequate workmen which attracts labour license clause, will obtain independent license under the Contract Labour (Regulations and Abolition Act, 1970) from the concerned authorities based on the certificate (Form-V) issued by the principal employer / customer. The Labour license is to be obtained from appropriate Labour

Clause No	DESCRIPTION
	Commissioner's Office as per prevailing rules. The Labour office at Bilaspur (CG state) may be approached for further details.
23.5.	The contractor shall pay all taxes, fees, license charges, deposits, duties, tolls, royalty, commissions or other charges which may be leviable on account of any of his operations connected with this contract. In case BHEL is forced to make any such payment, BHEL shall recover the same from the contractor either from moneys due to him or otherwise as deemed fit.
23.6.	While BHEL / BHEL's Customer will pay the inspection fees of the Boiler / Electrical Inspectorate, all other arrangements for the periodical visits of Boiler / Electrical Inspector to site, inspection certificates etc. will have to be made by the contractor at his cost. The contractor will also meet all expenses in connection with his welder's qualification / re-qualification tests etc.
23.7.	The contractor shall be responsible for the provision of health and sanitary arrangements more particularly described in the Contract Labour (Regulations and Abolition Act, 1970) and safety precautions as may be required for safe and satisfactory execution of the contract.
23.8.	The contractor shall be responsible for proper accommodation including adequate medical facilities for the personnel employed by him.
23.9.	The contractor shall be responsible for the proper behavior and observance of all regulations by the staff employed by him.
23.10.	The contractor shall ensure that no damage is caused to any person / property of other parties working at site. If any such damage is caused, it shall be the responsibility of the contractor to make good the losses and compensate them.
23.11.	All the properties/ equipment/ components of BHEL/ BHEL's customer loaned with or without deposit, to the contractor shall remain the properties of BHEL/ BHEL's customer. The contractor shall use such properties for the purpose of execution of this contract. All such properties / equipment / components shall be taken to be in good condition unless notified to the contrary by the contractor within 48 hours. The contractor shall return them in good condition as and when required by BHEL/ BHEL's customer. In case of non-return, loss, damage, repairs etc., the cost thereof, as may be fixed by the Engineer, will be recovered from the contractor.
23.12.	It shall not be obligatory on the part of BHEL to supply any tools and tackles or materials other than those specifically agreed to be given by BHEL. However, depending upon availability / possibility, BHEL/ its customer's equipment and other materials may be made available to the contractor on payment of hire charges as fixed by them , subject to the conditions laid down by BHEL/ BHEL's customer from time to time. Unless paid in advance, such hire and other charges shall be recovered from out of dues to the contractor or security deposit in one installment.
23.13.	In case the contractor is required to undertake any work outside the scope of this contract, the amount payable shall be as may be mutually agreed upon.
23.14.	Any delay in completion of works or non-achievement of periodical targets, due to reasons attributable to the contractor, will have to be compensated by the contractor either by increased manpower and resources or by working extra hours or more than one shift at no extra cost to BHEL.
23.15.	The contractor shall execute the work under the conditions usual to such power plant construction and in conjunction with numerous other operations at site. The contractor and his personnel shall cooperate and coordinate with other agencies at project site and proceed in a manner that shall help in the progress of work at site as a whole.
23.16.	The contractor will be directly responsible for payment of wages to his workmen. A pay-roll sheet giving details of all payments made to the workmen duly signed by the contractor's representative should be furnished to BHEL, if called for. Work delay on account of wages not paid by the contractor will not be entertained.
23.17.	In case of any class of work for which there is no specification laid down in the contract, such work shall be carried out in accordance with the instructions and requirements of the Engineer.
23.18.	No levy, payment or charges made or imposed shall be impeached by reason of any clerical error or by reason of any mistake in the amount levied, demanded or charged.
23.19.	No idle labour charges will be admissible in the event of any stoppage of work resulting in the contractor's workmen being rendered idle due to any reason at any time.
23.20.	The contractor shall take all reasonable care to protect the materials and the work till such time the plant / equipment has been taken over by BHEL / BHEL's customer.
23.21.	Contractor shall not stop work or abandon the site for whatsoever reason or dispute, excepting for force majeure conditions. All problems / disputes shall be separately discussed and settled without effecting the progress of work. Stoppage or abandonment of work, other than under force majeure conditions, shall be treated as breach of work of contract and dealt with accordingly.
23.22.	The contractor shall keep the area of work clean and shall remove the debris etc. while executing day-to-day work. Upon completion of work, the contractor shall remove from the vicinity of work, all scrap, packing materials, rubbish, unused and other materials and deposit them in places specified by the Engineer. The contractor will also demolish all the hutments, sheds, offices, etc. constructed and used by him and shall clean the debris. In the event of his failure to do so, the same will be arranged to be done by the Engineer and the expenses recovered from the contractor.
23.23.	The contractor shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and timely execution shall be the essence of this contract. The contractor shall be responsible to ensure that the quality, assembly and workmanship conform to the dimensions and clearance given in the drawings and/ or as per the instructions of the Engineer.
23.24.	The contractor shall furnish fortnightly labour deployment report indicating the classification and number of workmen engaged,

Clause No	DESCRIPTION
	date wise and category wise. Besides, the contractor shall also furnish progress reports on work at regular intervals as required by the Engineer.
24.	RESPONSIBILITIES OF CONTRACTOR IN RESPECT OF SAFETY OF MEN, EQUIPMENT, MATERIAL AND ENVIRONMENT.
24.1.	All safety rules and codes applied by BHEL and BHEL's customer at site shall be observed by the contractor and his workmen without exception. The contractor shall be responsible for the safety of the equipment / material and work to be performed by him and shall maintain all lights, fencing guards, signs etc. or other protections necessary for the purpose. Contractor shall also take such additional precautions as may be indicated from time to time by the Engineer, with a view to prevent pilferage, accidents, fire hazards etc. Suitable number of clerical staff, watch and ward, store keepers to take care of equipment, materials, construction tools and tackles shall be posted at site by the contractor till the completion of the work under this contract.
	The contractor shall arrange for such safety devices as are necessary for this type of work and carry out the requisite site tests of handling equipment, lifting tools, tackles etc. as per usual standards and practices.
24.2.	The contractor shall provide to his work force and ensure the use of the following personal protective equipment as found necessary and as directed by the authorized BHEL officials.
24.2.1.	Safety Helmets conforming to IS-2925
24.2.2.	Safety Belts conforming to IS-3521
24.2.3.	Safety shoes conforming to IS-1989
24.2.4.	Eye & Face Protection devices conforming to IS-8520 and IS-8940
24.2.5.	Hand & body protection devices conforming to IS-2573, IS-6994, IS-8807 & IS-8519.
24.3.	All tools, tackles, lifting appliances, material handling equipment, scaffolds, cradles, safety nets, ladders, equipment etc. used by the contractor shall be of safe design and construction. These shall be tested and certificate of fitness is obtained before putting them to use and from time to time as instructed by authorized BHEL official who shall have the right to ban the use of any item
24.4.	All electrical equipment, connections and wiring for construction power, it's distribution and use shall conform to the requirements of Indian Electricity Act and Rules. Only electricians licensed by the appropriate statutory authority shall be employed by the contractor to carry out all types of electrical works. All electrical appliances including portable electric tools used by contractor shall have safe plugging system to source of power and be appropriately earthed.
24.5.	The contractor shall not use any hand lamp energized by electric power with supply voltage of more than 24 volts. For work in confined spaces, lighting shall be arranged with power source of not more than 24 volts.
24.6.	Where it becomes necessary to provide and / or store petroleum products, explosives, chemicals and liquid or gaseous fuel or any other substance that may cause fire or explosion, the contractor shall be responsible for carrying out such provision and/or storage in accordance with the rules and regulations laid down in the relevant Government Acts, such as Petroleum Act, Explosives Act, petroleum and Carbides of Calcium Manual of the Chief Controller of Explosives, Government of India etc. The contractor in all such matters shall also take prior approval of the authorized BHEL official at the site.
24.7.	The contractor shall arrange at his cost (wherever not specified) appropriate illumination at all work spots for safe working, when natural daylight may not be adequate for clear visibility.
24.8.	In case of a fatal or disabling injury / accident to any person at construction sites due to lapses by the contractor, the victim and / or his / her dependents shall be compensated by the contractor as per statutory requirements. However, if considered necessary, BHEL shall have the right to impose appropriate financial penalty on the contractor and recover the same from payments due to the contractor for suitably compensating the victim and / or his / her dependents. Before imposing any such penalty, appropriate enquiry shall be held by BHEL giving opportunity to the contractor to present his case.
24.9.	In case of any damage to property due to lapses by the contractor, BHEL shall have the right to recover the cost of such damages from the payments due to the contractor after holding an appropriate enquiry.
24.10.	In case of any delay in the completion of a job due to mishaps attributable to lapses by the contractor, BHEL shall have the right to recover cost of such delay from the payments due to the contractor, after notifying the contractor suitably and giving him opportunity to present his case.
24.11.	If the contractor fails to improve the standards of safety in its operation to the satisfaction of BHEL after being given reasonable opportunity to do so and / or if the contractor fails to take appropriate safety precautions or to provide necessary safety devices and equipment or to carry out instructions regarding safety issued by the authorized BHEL official, BHEL shall have the right to take the corrective steps at the risk and cost of the contractor after giving a notice of not less than seven days indicating the steps that would be taken by BHEL.
24.12.	The contractor shall submit report of all accidents, fires, property damage and dangerous occurrences to the authorized BHEL official immediately after such occurrence, but in any case not later than 12 hours of the occurrence. Such reports shall be furnished in the manner prescribed by BHEL. In addition, periodic reports on safety shall also be submitted by contractor to the authorized BHEL official from time to time as prescribed.
24.13.	During the course of construction, alteration or repairs, scrap ladders with protruding nails, sharp edges etc., and all other debris including combustible scrap shall be kept cleared from working areas, passage ways and stairs in and around site.
24.14.	Cylinders shall be moved by tilting and rolling them on their bottom edges. They shall not be intentionally dropped, struck or permitted to strike each other violently. When cylinders are transported by powered vehicles, they shall be secured in a vertical position.
24.15.	The contractor shall be responsible for the safe storage of his radioactive sources.

Clause No	DESCRIPTION
24.16.	The entire contractor's supervisory personnel and sufficient number of workers shall be trained for firefighting and shall be assigned specific fire protection duties. Enough number of such trained personnel must be available during the tenure of the contract.
24.17.	Contractor shall provide enough fire protecting equipment of the types and numbers at his office, stores, erection site, other temporary structures, labor colony area etc. Access to such fire protection equipment shall be easy and kept open at all times. Compliance of the above requirement under fire protection shall in no way relieve the contractor of any of his responsibility and liabilities to fire accident occurring. In the event fire safety measures are not to BHEL's satisfaction, BHEL shall have option to provide the same and recover the cost plus incidentals from contractor's bills and / or impose penalty as deemed fit by the Engineer.
24.18.	Before commencing the work, the contractor shall appoint /nominate a responsible officer to supervise implementation of all safety measures and liaison with his counterpart of BHEL.
24.19.	If safety record of the contractor in execution of the awarded job is to the satisfaction of Safety Department of BHEL, issue of an appropriate certificate to recognize the safety performance of the contractor may be considered by BHEL after completion of the job.
25.	HEALTH, SAFETY AND ENVIRONMENT (HSE)
25.1.	This specification establishes the Health, Safety and Environment (HSE) management requirement to be complied with by the Contractors during construction. Requirements stipulated in this specification shall supplement the requirements of HSE Management given in relevant Act (s) / legislations, General Condition Contract (GCC). Special Conditions of Contract (SCC) and job specification where different documents stipulates different requirements, the most stringent be adopted
25.2.	REQUIREMENTS OF HEALTH, SAFETY & ENVIRONMENT (HSE) MANAGEMENT SYSTEM TO BE COMPLIED BY CONTRACTORS.
25.2.1.	The Contractor has to comply with HSE requirement at sites to cover commitment of their organization to ensure health, safety and environment aspects in their line of operations. Contractor shall be fully responsible for planning and implementing HSE requirements. Contractor has to deploy one safety supervisor. Contractor shall indemnify & hold BHEL / BHEL's customer & their representatives free from any and all liabilities arising out of non-fulfillment of HSE requirement.
25.2.2.	The Contractor shall ensure that the Health, Safety and Environment (HSE) requirements are clearly understood & faithfully implemented at all levels at site.
25.2.3.	Non-Conformance on HSE by Contractor as brought out during review / audit by BHEL / BHEL's customer representative shall be resolved forthwith by Contractor. Compliance report shall be provided.
25.2.4.	The Contractor shall adhere consistently to all provisions of HSE requirements. In case of non-compliance or continuous failure in implementation of any of HSE provisions, BHEL / BHEL's customer may impose stoppage of work without any Cost & Time implication to BHEL and / or impose a suitable penalty for noncompliance with a notice of suitable period. The decision of imposing penalty shall rest with BHEL & binding on the Contractor.
25.2.5.	Contractor shall ensure that a high degree of housekeeping is maintained.
25.2.6.	Besides provision with regard to SAFETY under Clause 9 of GCC, the contractor will be responsible for Health, Safety & Environment management at site for the activities to be carried out by them in accordance with requirements of this Contract and regulations applicable at site. The contractor shall continuously take special care to ensure the safety and prevention of human and equipment accidents and maintain good sanitary conditions in and around the site. All the work and plant operation must be carried out in the safest possible manner. The Engineer reserves the right to stop any process which, in the Engineer's opinion, is being performed dangerously. In this case the contractor must immediately adhere to the requisite safety precautions and any delays attributed to the work stoppage on this account shall not affect the agreed contractual finishing dates. Some of the common safety rules to be followed during working are as follows: -
25.2.6.1.	No outsider is allowed to enter construction area without permission.
25.2.6.2.	Site Safety training to be imparted to all workers & plan to be made to cover each and every worker for this training.
25.2.6.3.	Nobody is allowed to enter site without Safety Shoe.
25.2.6.4.	Never enter work area without Safety helmet & chin strap in place.
25.2.6.5.	No climbing/working allowed without proper safety belt above 2m height.
25.2.6.6.	Do not exceed the speed limit of 20 KMPH for vehicles within premises.
25.2.6.7.	No debris obstacles to be allowed to be dumped on the roads & passages. Maintain record of all accidents / incidents. All accidents/incidents need to be reported to site In-charge & also need to be investigated (formats & procedure should be finalized).
25.2.6.8.	Do not walk on pipelines or false ceiling. No photography / Videography shall be allowed without permission.
25.2.6.9.	All safety equipment must be of International standards & checked by safety supervisor / officer before use.
25.2.6.10.	Separate waste bins to be used for flammable & non-flammable material.
25.2.6.11.	Testing certificates for lifting tools & tackle and inspection at regular intervals, besides thorough inspection prior using the same.
25.2.6.12.	Checking of tags of equipment like grinding machine, welding machine, gas cutting set etc., by supervisors before use.
	The records, reports and monitoring format for the observance of Health, Safety & Environment (HSE) rules & regulation shall be provided by BHEL engineer during the execution of work at site. Contractor has to submit the same as and when demanded by BHEL Engineer.
26.	The Contractor shall comply with the following towards Social Accountability

Clause No	DESCRIPTION
26.1.	The contractor shall not employ any person less than 15 years of age in pursuant to ILO convention. If any child labour were found to have been engaged, the contractor shall be levied with expenses of bearing his education expenditure which will include stipend to substantiate appropriate education or employ any other member of family enabling to bear the child education expenditure.
26.2.	The contractor shall not engage Forced/Bonded Labour and shall abide by abolition of Bonded Labour System (Abolition) Act, 1976.
26.3.	The contractor shall maintain Health & Safety requirement as stipulated in the contract and contract Labour (Regulation & Abolition) Act, 1970.
26.4.	The contractor shall abide by UN convention w.r.t. Human Rights and shall be liable for Decimation / Corporal punishment for failure in meeting with relevant requirements.
26.5.	The contractor shall abide the requirement of contract Labour (Regulation & Abolition) Act, 1970 for working hours.
26.6.	The Contractor shall abide by the statutory requirement of Minimum Wages Act 1948, payment of Wages Act 1936.
26.7.	The Contractor shall arrange potable drinking water to its employees & workers.
27.	CONSEQUENCES OF CANCELLATION
27.1.	Whenever BHEL exercises its authority to terminate the contract / withdraw a portion of work under clause 25, the work may be got completed by any other means at the contractor's risk and cost provided that in the event of the cost of completion (as certified by the Engineer which shall be final and binding on the contractor) being less than the contract value, the advantage shall accrue to BHEL. If the cost of completion exceeds the moneys due to the contractor under the contract, the contractor shall either pay the excess amount demanded by BHEL or the same shall be recovered from the contractor. This will be in addition to the forfeiture of Security Deposit and recovery of liquidated damages as per relevant clauses.
27.2.	In case BHEL completes the work under the provisions of this clause, the cost of such completion to be taken into account for determining the excess cost to be charged to the contractor shall consist of cost of materials purchased and / or labour provided by BHEL with an addition of such percentage to cover supervision and establishment charges as may be decided by BHEL.
28.	INSURANCE
28.1.	BHEL / BHEL's customer shall arrange for insuring the materials / property of BHEL / BHEL's customer covering the risks during transit, storage, erection and commissioning.
28.2.	It shall be the sole responsibility of the contractor to insure his workmen against risks of accidents and injury while at work as required by the relevant Rules and to pay compensation, if any, to them as per Workmen's Compensation Act. The contractor shall also insure his staff against accidents. The work will be carried out in a protected area and all the Rules and Regulations of BHEL / BHEL's customer in the Project Area which are in force from time to time will be followed by the contractor.
28.3.	If due to negligence and / or non-observance of safety and other precautions by the contractor, any accident / injury occur to any other persons / public, the contractor shall pay necessary compensation and other expenses, if so decided by the appropriate authority.
28.4.	The contractor will take necessary precautions and due care to protect the material, while in his custody from any damage / loss till the same is taken over by BHEL or customer. For lodging / processing of insurance claim the contractor will submit necessary documents. BHEL will reserve the right to recover the loss from the contractor, in case the damage / loss is due to carelessness / negligence on the part of the contractor. In case of any theft of material under contractor's custody, matter shall be reported to Project Security / police by the contractor immediately and copy of FIR and subsequently the investigation report shall be submitted to BHEL for taking up with insurance.
28.5.	If due to negligence / carelessness on the part of the contractor, any material / equipment get's damaged, the contractor shall submit necessary documents for lodging insurance claims as required by BHEL Engineer. BHEL shall however reserve the right to recover deductible franchise and also unsettled portion of insurance claim amount from the contractor.
28.6.	If due to negligence / carelessness on the part of the contractor, any surrounding properties also get damaged, the contractor shall submit necessary documents for lodging insurance claims as required by BHEL Engineer. BHEL shall however reserve the right to recover deductible franchise and also unsettled portion of insurance claim amount from the contractor.
28.7.	The contractor may note that BHEL T&P / IMTE are not insured. The Contractor will take necessary precautions and due care to protect the same while in his custody from any damage/ loss till the same is handed over back to BHEL.
	In case the damage / loss is due to carelessness/ negligence on the part of the contractor, the Contractor is liable to get them repair/ replaced immediately and in case of his failure to do so within a reasonable time , BHEL will reserve the right to recover the loss from the contractor.
29.	STRIKES AND LOCKOUTS
29.1.	The contractor will be solely responsible for all disputes and other issues connected with his workmen. In the event of contractors workmen resorting to strike or the contractor resorting to lockout and if the strike or lockout so declared is not settled within a period of one week, BHEL shall have the right to get the erection work executed by employing its own men or through other agencies or both. The cost incurred by BHEL in this regard shall be recovered from the contractor.
29.2.	For any purpose whatsoever, the employees of the contractor shall not be deemed to be in the employment of BHEL.
30.	FORCE MAJEURE
30.1.	The following shall amount to FORCE MAJEURE conditions. Acts of God, Act of any Government, War, Sabotage, Riots, Civil Commotion, Police Action, Revolution, Flood, Fire, Cyclone, Earthquake and Epidemic and other similar causes over which the contractor has no control.

Clause No	DESCRIPTION
30.2.	If the contractor suffers delay in the due execution of the contract, due to delays caused by conditions, FORCE MAJEURE as defined above, the agreed time for completion of the work covered by this contract shall be extended by a period of time equal to the period of delay, provided that on the occurrence of any such contingency, the contractor immediately reports to BHEL in writing the causes for the delay but the Contractor shall not be eligible for any compensation on this account.
31.	GUARANTEE Even though the work will be carried out under the supervision of the Engineer, the contractor will be responsible for the quality of the workmanship and shall guarantee the work done for a period of Twelve months from the date of completion of work as certified by the Engineer, and shall rectify, free of cost to BHEL, all defects arising out of faulty erection during the guarantee period starting from the date of completion of rectification. In the event of the contractor failing to repair the defective works within the time specified by the Engineer, BHEL may proceed to undertake the repairs of such defective works at the contractor's risk and cost, without prejudice to any other rights and recover the same from out of any moneys payable to the contractor or by other legal means.
32.	ARBITRATION:
32.1.	Except where otherwise provided for in this contract, all questions and disputes relating to the meaning of the terms and conditions and instructions herein before mentioned and as to the completion of work/services, has been other questions, claim, right, matter of things whatsoever in any way arising out of or relating to the contract, instructions, orders or these conditions or otherwise concerning the works or the execution or failure to execute the same, whether arising during the schedule of work or after the completion or abandonment thereof, shall be referred to the sole arbitration of the Additional General Manager of External Services Department of BHEL, Electronics Division (AGM/ES) and if the Additional General Manager is unable or unwilling to Act, to the sole arbitration of some other person appointed by the Executive Director, BHEL-Electronics Division, willing to Act as such arbitrator.
32.2.	There will be no objection for the Purchaser if the arbitrator so appointed is an employee of BHEL and that he had to deal with the matters to which the contract relates and that in the course of his duties as such he had expressed views on all or any of the matters in dispute or difference. The arbitrator to whom the matter is originally referred being transferred by vacating his office or being unable to act for any reason, such Additional General Manager as aforesaid at the time of such transfer, vacation of office or inability to act, shall appoint another person to act as arbitrator in accordance with terms of the contract, such person shall be entitled to proceed with the reference from the state at which it was left by his predecessor.
32.3.	Subject as aforesaid the provisions of the Arbitration and Conciliation Act, 1996 of India or any statutory modification or re-enactment thereof and the rules made there under and for the time being in force shall apply to the arbitration proceedings under this clause. It is a term of contract that the party initiating arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute. The venue for the arbitration shall be Bangalore, India. The award of the arbitrator shall be final, conclusive and binding on all parties to this contract.
33.	The gist of R&M activities are listed below. Details of activities are specified in the SCC.
33.1.	Existing Panels (as per Annexure-1a) removal along with all components and shifting to location identified by BHEL's Customer after cleaning the said location.
33.2.	Receipt, Loading, Transportation from the stores where these items are stored to the erection site, Unloading at place of Installation, including all labor and consumable, supervising etc
33.3.	New Panels Supplied by BHEL to be erected as per Line up which includes DDC panels, Relay Panels, Marshaling Panels, Transducer Panels etc.,
33.4.	Chargers and Battery System Erection including cabling, Battery Charging – Discharging activities as a part of commissioning activity under supervision of BHEL / BHEL Vendor.
33.5.	Slave Clock Installation in various parts of Plant including commissioning support under supervision by BHEL / BHEL Vendor
33.6.	Power supply Cabling from DCDB / ACDB to various Control panels, Earth cabling up to Earth riser / Pit from DCS panels, HMI System related power cabling, Laying and Termination, Bunching, tagging, Dressing etc
33.7.	Installation & commissioning of HMI PC's, Ethernet switches, printers, data logger and 67 inches large video screen (LVS).
33.8.	Dismantling of Existing Cables (All Types) from the Panels that are being removed under sl. No. 33.1 and hand over to BHEL'S CUSTOMER after quantification. This includes identification of cables as some of the cables are to be re used.
33.9.	All New JB, TTJB, erection activities including some of the Old JB's dismantling. Reconditioning of Existing cable Trays as applicable
33.10.	Laying & termination of control & instrumentation cables as per site requirements. Cables required to be laid from Local Instrument to JB's in field, from JB's to DCS cabinets; DCS to Alarm facia, DCS to Console Items mounted in newly supplied Consoles. Cables need to be laid for drives to MCC from DCS and for some drives the cabling is from DCS to the field equipment. Replacement of cable trays as per schedule and inspect / cleaning of existing tray / trenches is also part of bidder scope.
33.11.	Main cable tray, branch cable tray, conduits etc. to be laid upon removal of the existing structure if required, as per the instruction of BHEL Engineer
33.12.	Laying & Termination of Power cable, for distribution of power, from UPS system / DC power supply system to the related equipments / AC / DC loads. All power / control cables of various types indicated in rate schedule are considered here.
33.13.	Earth cable to be laid from each panel to the identified earth pit

Clause No	DESCRIPTION
33.14.	Connection / welding of impulse piping along with required hardware to match the existing(employer's) root valve (for steam and water applications) and to tapping point stub (for air and flue gas applications) for the primary instruments and installation of air supply piping to newly supplied LIE's.
33.15.	Dismantling of old field equipment in Boiler / turbine area and erection of the new equipment as per manufacturer's drawing / BHEL instructions.
33.16.	Fabrication of CUTOUPS, Drilling of Various sizes of holes in Gland Plates for Cable Entry in Control Room Panels and elsewhere as applicable
33.17.	Cable Laying of Network Cable including Crimping and Termination as a part of HMI related work covering DCS side also.
33.18.	Stores Management activities including watch and ward, handing over of mandatory spares / loose items to BHEL'S CUSTOMER, at various points of Time, Material verification, Issue, Reconciliation etc. The records have to maintained, which will be verified, audited from time to time by BHEL. Computerized administration of these activities will be called for and the bidder will arrange for all these requirements in the overall quote.
	The above mentioned activities are to be carried out in the time frame specified against each unit. The bidder to ensure availability of sufficient manpower in the form of Engineers, Supervisors, Electricians, Technicians (fitters & welders), unskilled labor etc. for smooth execution of project during Erection, Testing, Commissioning and up to Trial run completion of each of the unit. At any point of time during the total contract period, excluding shutdown, there should be a minimum manpower of One Engineer, Two electricians / Technicians with adequate number of Helpers. The quoted price as per rate schedule is deemed to have included this requirement under the scheduled activities.
	Bidders to arrange for all T&P and IMTE required carrying out the various erection activities and Transportation requirements. BHEL will not be providing any T&P or IMTE. BHEL can however request for utilizing BHEL'S CUSTOMER facilities at KORBA power house and contractor to avail the facilities on the terms and conditions laid out by BHEL'S CUSTOMER. Non availability of any T&P and IMTE cannot be allowed for Slow or NIL progress of work. Being a shutdown related job, BHEL can always get the works done by any agency or by any means the said work and recover from the contractor all the expenditure including Overheads related to such works.

SECTION - III: SPECIAL CONDITIONS OF CONTRACT - PART-A

INDEX

Clause	Description
34.0	General
35.0	Civil works, foundation and grouting
36.0	Consumables
37.0	Tools & Plants/ IMTE's
38.0	Supervisory staff & workmen
39.0.	Material handling and storage
40.0	Preservation of components
41.0	Welding
42.0	Progress reporting
43.0	Drawings & documents
44.0.	Income tax, Service Tax & sales tax etc.
45.0	Extra work
46.0	Price variation
47.0	Rate schedule
48.0	Instructions to Bidder
49.0	Liquidated Damages (LD)
50.0	Security Deposit
51.0	Others

Clause No	DESCRIPTION
34.	GENERAL
34.1.	The intent of this specification is to provide services for execution of project according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient services towards installation of the plant shall not relieve the contractor of the responsibility of providing such services / facilities to complete the work or portion of work awarded to him. The quoted / accepted rates / price shall deem to be inclusive of all such contingencies.
34.2.	It is not the intent to completely specify herein every details of dismantling, erection, testing and commissioning work required to be carried out by the Contractor. Nevertheless, the work shall include all items as necessary for complete dismantling, erection, testing and commissioning for the services stipulated in the specification and systems/items within the scope of this supply, within the quoted rates, even though not specifically mentioned herein.
34.3.	Bidder shall strictly observe subsequent provisions in this specification and also general terms and conditions of contract and shall be deemed to have understood and agreed to all the provisions in them, without objections unless otherwise mentioned in the deviation list.
34.4.	The contractor shall carry out the work in accordance with standard practices / codes /instructions /drawings/ documents / specification supplied by BHEL from time to time.
34.5.	The work shall conform to dimensions and tolerances given in various drawings and documents that will be provided during erection. If any portion of work is found to be defective in workmanship, not conforming to drawings or other stipulations, the contractor shall dismantle and redo the work duly replacing the defective materials at his cost failing which the job will be carried out by BHEL by engaging other agencies / departmentally and recoveries will be effected from contractor's bills towards expenditure incurred including BHEL's usual overhead charges.
34.6.	Following shall be the responsibility of contractor and have to be provided within finally accepted rates / prices:
34.6.1.	Provision of all types of labor, supervisors, Engineers, watch and ward as required, tools & tackles, calibrated - inspection, measuring and test equipment as specified and otherwise required for the work and consumable for erection, testing and commissioning including material handling. The master instruments used for the purpose of calibration should be supported with a valid certificate.
34.6.2.	Proper out-turn as per BHEL plan and commitment.
34.6.3.	Completion of work as per BHEL Schedule.
34.6.4.	Good quality and accurate workmanship for proper performances of equipment.
34.6.5.	Repair, rectification and modification in electrical circuits/wiring involving removal of connections & redoing as per modification.
34.6.6.	Preservation / Re-conservation of all components during storage / erection till handing over.
34.6.7.	Housekeeping: The contractor is supposed to carry out housekeeping of work area on regular basis to keep the work place neat and tidy. The scrap generated during execution activities is to be dumped at designated area as decided by BHEL / BHEL's customer. Compliance report on above shall be submitted by the contractor to BHEL. In case contractor fails to do so, BHEL shall get the same done at the risk and cost of the contractor.
34.7.	BHEL- is ISO 9001-2000, ISO 14001-1996, OHSAS 18001-1999 certified company. Quality of work to customer's satisfaction and system requirements is the essence of these certifications. The contractor in all respects will organize his work, systems, environment, process control documentation, tools, plant, inspection, measuring and testing equipment etc. as per instructions of BHEL engineer.
34.8.	The contractor shall strictly adhere to the fraud prevention policy of NTPC displayed on its tender website www.ntpctender.com
34.9.	Contractor shall ensure availability of the following
34.9.1.	Medicines for normal ailments
34.9.2.	First Aid Kit
34.10.	Spare
35.	CIVIL WORKS, FOUNDATIONS AND GROUTING.
35.1.	Foundation for all equipment shall be provided by client of BHEL.
	Minor Civil works like chipping, grouting etc. wherever required is to be carried out by the contractor within the quoted price.
36.	CONSUMABLES
36.1.	The contractor shall provide within finally accepted rates, all consumables like:
36.1.1.	Welding electrodes (including alloy steel , stainless steel), filler wires , TIG wires , all inert / welding gases, soldering material, dye penetrants, other erection consumables such as tapes, jointing compound, grease, mobile oil, M-seal, Araldite , Permal wood, petrol , CTC / other cleaning agents, petroleum jelly, insulation tape, PVC sealing compound, sleeves, Clamps, cable ties, gaskets, cable lugs (refer cable types indicated in BOQ (Annexure-1) for sizes), Cable tags, Hard wares, Paints and painting related consumables etc
36.1.2.	Ferrules, lugs, self-locking nylon cable ties, cable tags and markers, nuts & bolts etc. as required.
36.1.3.	Fire proof sealing's in cable entry and fire retardant cable coating in areas exposed.
36.2.	It shall be the responsibility of the contractor to plan the activities and store sufficient quantity of consumables. Non availability of any consumable materials or equivalent suggested by BHEL cannot be considered as reason for not

Clause No	DESCRIPTION
	attaining the required progress or for additional claim.
36.3.	The contractor shall engage certified welder as approved by BHEL / BHEL'S CUSTOMER and should use welding electrodes approved by BHEL/BHEL'S CUSTOMER.
36.4.	BHEL reserves the right to reject the use of any consumable including electrodes, gases, lubricants, Paints / special consumables if it is not found to be of the required standard / make / purity or when shelf life has expired. Contractor shall ensure display of shelf life on consumable wherever required & records maintained.
36.5.	Storage of all consumables including welding electrodes shall be done as per requirement / instruction of the Engineer by the contractor at his cost.
36.6.	In case of improper arrangement for procurement of any consumable, BHEL reserves the right to procure the same from any source and recover the cost from the Contractor's first subsequent bill at market value plus the departmental charges of BHEL from time to time (30% at present). Postponement of such recovery is normally not permitted. The decision of Engineer in this regard shall be final and binding on the contractor. All charges on account of Octroi, terminal or sales tax and other duties on materials obtained for the works from any source shall be borne by the contractor.
36.7.	All services including labor and T&P will be provided by the contractor for handling, filling, emptying, refilling etc. The consumption of lubricants / chemicals shall be properly accounted for. Surplus material if any shall be properly stacked and returned to stores.
37.	TOOLS AND PLANTS / IMTE
37.1.	T&P & IMTE is to be arranged by the contractor and the rates quoted are deemed to be inclusive of these charges. List of such T&P and IMTE is indicated separately.
37.2.	All other T&P and IMTE which are required for successful and timely execution of the work covered within the scope of this tender, shall be arranged and provided by the contractor at his own cost in working condition (As per ANNEXURE-7a, 7b, & 10). In the event of the failure of contractor to bring necessary and sufficient T&P and IMTE, BHEL will be at liberty to arrange the same at the risk and cost of contractor and hire charges as applicable shall be deducted from contractor's bill. Decision of BHEL in this regard shall be final and binding on contractor.
37.3.	All distribution boards, connecting cables / welding cables, wire ropes, hoses etc. including temporary air/water / electrical connections etc. shall have to be arranged by the contractor at his own cost. Power cable including the main in comer cable (from substation to contractors point) of sufficient capacity shall be arranged by the contractor for the construction power requirement.
37.4.	In case of non-availability of the T&P to be provided by BHEL due to breakdown, major overhauls, distribution pattern or any other reason, the contractor shall plan / amend / alter his activities to meet erection / commissioning targets in consultation with BHEL.
37.5.	Contractor shall ensure deployment of reliable and calibrated IMTE (Inspection measuring and Test equipment). The IMTE shall have test / calibration certificates from authorized / Govt. approved / accredited agencies traceable to National / International standards. Each IMTE shall have a label indicating calibration status i.e. date of calibration, calibration agency and due date for calibration. A list of such instruments deployed by contractor at site with its calibration status is to be submitted to BHEL Engineer for control.
37.6.	Retesting / re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer within the contract price.
	The contractor will also have alternate arrangements for such IMTE so that work does not suffer when the particular instrument is sent for calibration. Also if any IMTE not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to deploy proper item and recall i.e. repeat the readings taken by that instrument, failing which BHEL may deploy IMTE and retake the readings at contractor's cost.
37.7.	BHEL shall have lien on all T&P, IMTE & other equipment of the Contractor brought to the site for the purpose of erection, testing and commissioning. BHEL shall continue to hold the lien on all such items throughout the period of Contract. No material brought to the site shall be removed from the site by the Contractor and /or his Sub-contractors without the prior written approval of the BHEL Engineer.
37.8.	It shall be the contractor's responsibility to deploy the required T&P, for timely and successful completion of the job.
38.	SUPERVISORY STAFF AND WORKMEN
38.1.	The contractor shall deploy all the skilled workmen like fitters, welders, gas cutter, riggers, electricians, instrument technicians, etc., in addition to other skilled, and unskilled workmen required for all the works of Unloading, handling and transporting from site storage to erection site, erection, testing and commissioning as contemplated under these specification.
	Only fully trained and competent men with previous experience on the job shall be employed. They shall hold valid certificates wherever necessary. BHEL reserves the right to decide on the suitability of the workers and other personnel who will be deployed by the contractor. BHEL reserves the right to ask for removal of any employee workman of the contractor at any time, if they find him unsuitable and the contractor shall forthwith remove him.
38.2.	The adequate supervisory staff, including qualified Engineers, shall be deployed by the contractor to ensure proper turn out of work and discipline on the part of the labor put on the job by the contractor and in general see that the works are carried out in a safe and proper manner and in coordination with other labor and staff deployed directly by BHEL or

Clause No	DESCRIPTION
	other contractors of BHEL or BHEL's client / other agency.
38.3.	The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. The contractor and his personnel shall cooperate with other personnel / contractor coordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.
38.4.	The contractor's supervisory staff shall execute the work in the most substantial and workman like manner in the stipulated time. Accuracy of work and aesthetic finish are essential part of this contract. The contractor shall be responsible to ensure that assembly and workmanship conform to the dimensions and tolerances given in the drawings /documents/ instructions given by BHEL Engineer from time to time.
38.5.	The contractor shall deploy the necessary number of qualified and approved full time electricians at his cost to maintain his temporary electrical installation till the completion of work.
38.6.	During the course of erection, if the progress is found unsatisfactory, or if the target dates fixed from time to time for every mile stones are to be advanced or in the opinion of BHEL, if it is found that the skilled workmen like fitters, Electricians , technicians etc. deployed are not sufficient, BHEL after giving reasonable opportunity to the contractor, will induct on the work the required workmen in addition to contractor's workmen to improve the progress and recover from the contractor's bills any charges incurred for engaging the additional workmen with overheads. Decision of BHEL engineer will be final and binding on the contractor.
38.7.	It is the responsibility of the contractor to engage his workmen in shifts or on overtime basis for achieving the targets set by BHEL and also during the period of commissioning and testing of unit. The contractor's finally accepted rates / prices shall include all these contingencies.
38.8.	If the contractor or his workmen or employees shall break, deface, injure or destroy, any part of a building, road kerb, fence, enclosure, water pipes, cables, drains, electric or telephone posts or wire, trees or any other property or to any part of erected components etc., the contractor shall make the same good at his own expense or in default, BHEL may cause the same to be made good by other workmen or by other means and deduct the expenses (of which BHEL decision is final) from any money due to the contractor.
38.9.	The manpower deployment plan to be submitted as per format (Refer ANNECURE-11) is only to assess the capability as well as understanding of the contractor to execute the work. It shall be the contractor's responsibility to deploy the required man power, for timely and successful completion of the job, to any extent over and above those indicated in the above deployment plan (including those which are not covered in the plan submitted) without any compensation on this account. Separate persons shall be identified at site for quality control and safety by the contractor as far as possible.
39.	MATERIAL HANDLING AND STORAGE
39.1.	All the equipment and material furnished under this contract are unloaded already at stores. These are to be received from the project stores, sheds / storage yards (any place within site) and transported to erection site and stored in the storage spaces in a manner so that they are easily retrievable till they are erected by the contractor. While drawing / lifting material from BHEL / Customer stores, contractor shall ensure that the balance / other materials are stacked back immediately. Please refer to scope of stores work indicated.
39.2.	While BHEL will endeavor to store / stack / identify materials properly in their open / close / semi closed / tarpaulins covered storage yard / shed, it shall be contractors responsibility to assist BHEL in identifying materials well in time for erection, taking delivery of the same, following the procedure indicated by BHEL and transport the material safely to pre-assembly yard/ erection site in time, according to program.
39.3.	The contractor shall take delivery of components, equipment / consumables from storage area after getting the approval of BHEL Engineer on standard indent forms.
39.4.	The contractor shall identify and deploy necessary Engineers/ supervisors / workmen for the above work in sufficient number as may be needed.
39.5.	All the equipment shall be handled very carefully to prevent any damage or loss. No untested wire ropes/ slings etc. shall be used for unloading / handling. The equipment shall be properly protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from the stores shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at site. Test certificates for lifting tackles shall be produced by the contractor before use.
39.6.	Contractor shall ensure that while lifting slings shall be put over the points indicated on the equipment or as indicated in the manufacturer's drawings. Slings/ shackles of proper size shall be used for all lifting and rigging purposes.
	All care shall be taken to safe guard the equipment against any damage. In any case no item should be dragged. In case of any damage the cost shall be recovered from the contractor.
39.7.	Approach road conditions from the stores / yards to the erection site may not be equipped and ideal for smooth transportation of the equipment. Contractor may have to be adequately prepared to transport the materials under the above circumstances without any extra cost to BHEL.
39.8.	Contractor shall be responsible for examining all the plant and material issued to him and notify the Engineer immediately of any damage, shortage, discrepancy etc. before they are moved out of the stores / storage area. The contractor shall submit to the Engineer every week, a report detailing all the receipts during the week. However, the contractor shall be solely responsible for any shortages or damages in transit, handling, storage and erection of the

Clause No	DESCRIPTION
	<p>equipment once received by him. As the erection work will be spread in different areas / locations of the project, contractor has to arrange sufficient no. of watch/ward personal to avoid any pilferage of material. In case any equipment / material is lost / damaged while in the custody of the contractor, the cost of repair / replacement if any to bring back the equipment in original order shall be to contractor's account and will be deducted from the contractor's bill.</p> <p>BHEL's decision in this regard shall be final and binding on the contractor.</p>
39.9.	The contractor shall maintain an accurate and exhaustive record detailing out the list of all equipment received by him for the purpose of erection and keep such record open for the inspection of the engineer at any time. Contractors may also deploy computers for such activities at their own cost.
39.10.	All the material in the custody of contractor and stored in the open or dusty locations must be covered with suitable weather proof / fire retardant covering material wherever applicable and shall be blocked up on raised level above ground. All covering materials including blocks and sleeper shall be arranged by the contractor at his cost.
39.11.	All electrical panels, control gear, motors and such other devices shall be properly dried by heating before they are installed and energized.
39.12.	If the material belonging to the contractor are stored in area other than those earmarked for his operation the engineer will have the right to get it moved to the area earmarked for the contractor at the contractors risk and cost.
39.13.	The contractor shall ensure that all the packing materials and protective devices used for various equipment during transit and storage are removed before the equipment is installed.
39.14.	The contractor shall be responsible for making suitable indoor storage facilities to store all equipment (drawn by the contractor from BHEL / customer stores) which require indoor storage till the time of their installation. The Engineer will direct the contractor in this regard, which item in his opinion will require indoor storage and the contractor shall comply with Engineer's decision
39.15.	The contractor shall ensure that all surplus / damaged / scrap / unused material, packing wood / containers/ special transporting frames etc. are returned to BHEL at a place in project area identified by the Engineer. An account will be maintained by the contractor for all such items received and returned to BHEL and duly reconciled before closing of the contract.
39.16.	The contractor shall hand over all parts / materials remaining extra over the normal requirement with proper identification tags to the concerned BHEL / Customer Engineer or at a place in project area as directed by BHEL Engineer.
40.	PRESERVATION OF COMPONENTS
40.1.	After taking delivery from BHEL / customer's stores, plant materials storage shall be subjected to the following protection besides other provisions indicated in these specifications elsewhere.
40.1.1.	Items stored outdoors shall be stored in such a way that item is at least six inches above the Ground.
40.1.2.	Watch and ward of stores and storage yard round the clock including at site where temporarily erection items are positioned.
40.2.	Any failure on the part of contractor to carry out works according to above clauses will entail BHEL to carry out the job from any other party and recover the cost from contractor.
41.	WELDING
41.1.	The method of manual welding (ARC welding) to be carried out shall be indicated in the detailed drawings / schedules/BHEL Engineers instruction. BHEL Engineer will have the option of changing the method of welding as per site requirements.
41.2.	All welders including tack welder, structural and pipe welder shall be tested and approved by BHEL/BHEL'S CUSTOMER before they are actually engaged on work. BHEL reserves the right to reject any welder if the welder's performance is not found to be satisfactory. All charges for testing of contractor's welders including destructive and non-destructive tests conducted by BHEL'S CUSTOMER at site or at laboratory shall have to be borne by the contractor only. However the requirements are to be exercised on the basis of work to be carried out and as applicable.
41.3.	Engineer may stop any welder from the work if his performance is unsatisfactory for any technical reason or if there is a high percentage of rejection of joints welded by a particular welder which, in the opinion of the Engineer will adversely affect the quality of the welding though the welder has earlier passed the tests prescribed by Engineer. The welder's having passed qualification tests does not absolve the contractor of contractual obligation to continuously check the welder's performance.
41.4.	Faulty welds shall be cut and re-welded at the contractor's expenses. The procedure for the repair of defective welds shall be approved by the Engineer prior to any repair being made. Records of such repairs and defects shall be maintained by the contractor as per BHEL Engineer's advice
41.5.	All charges for testing of contractor's welders including destructive and non-destructive tests if conducted by BHEL at site or at laboratory shall have to be borne by the contractor only.
41.6.	Only BHEL approved make electrodes will be used. All electrodes shall be baked and dried in the electric electrode baking oven to the required temperature for the period specified by the Engineer before these are used in erection work. All welders shall have electrodes drying portable oven at the work spot. Electrodes from holding oven shall be

Clause No	DESCRIPTION
	transferred to portable ovens. The electrodes brought to the site will have valid manufacturing test certificate.
41.7.	All welds shall be painted with anticorrosive red oxide paint. Necessary consumables and scaffolding etc. including paints shall be provided by contractor at his own cost and deemed to have been included in the rates quoted in the rate schedule.
42.	PROGRESS REPORTING
42.1.	Contractor is required to draw mutually agreed erection program in consultation with BHEL well in advance. Contractor shall ensure achievement of agreed program and shall also timely arrange additional resources considered necessary at no extra cost to BHEL.
42.2.	Weekly progress review meetings will be held at site during which actual progress during the week vis-a-vis scheduled program shall be discussed for actions to be taken for achieving targets. The program for subsequent week shall also be presented by contractor for discussions. The contractor shall constantly update/revise his work program to meet the overall requirement. All quality problems shall also be discussed during above review meetings. Necessary preventive and corrective action shall be discussed and decided upon in such review meetings and shall be implemented by the contractor in time bound manner so as to eliminate the cause of non-conformities.
42.3.	The contractor shall submit daily, weekly and monthly progress reports, manpower reports, materials reports, consumables (gases / electrodes etc) report and other reports as per Performa considered necessary by the Engineer.
42.4.	The progress report shall indicate the progress achieved against planned, with reasons indicating delays, if any, and shall give the remedial actions which the contractor intends to take to make good the slippage or lost time, so that further works again proceed as per the original program and the slippages do not accumulate and effect the overall program.
42.5.	The daily manpower reports shall clearly indicate the manpower deployed, category wise specifying also the activities in which they are engaged. BHEL will review such reports and advice the contractor on his activities.
43.	DRAWING AND DOCUMENTS
43.1.	The detailed drawings, specifications available with BHEL engineers will form part of this tender specification. The relevant documents will be made available to the contractor during execution of work at site. The contractor will also ensure availability of all drawings / documents at work place.
43.2.	The contractor shall maintain a record of all drawings and documents available with him in a register as per format given by BHEL Engineer. Contractor shall ensure use of pertinent drawings / data / documents and removal of obsolete ones from work place and returning to BHEL.
43.3.	The data furnished in various Annexure enclosed with this tender specification are only approximate and for guidance. However, the change in the design and in the quantity may occur as is usual in any such large scale of work.
43.4.	Should any error or ambiguity be discovered in the specification or information the contractor shall forthwith bring the same to the notice of BHEL before commencement of work. BHEL interpretation in such cases shall be final and binding on the contractor.
43.5.	Deviation from design dimensions should not exceed permissible limit. The contractor shall not correct or alter any dimension / details, without specific approval of BHEL.
44.	INCOME TAX, SERVICE TAX AND SALES TAX ETC
44.1.	Income tax & surcharge, if any at prevailing rates shall be deducted on gross invoice value from the running bills unless Exemption Certificate from appropriate Income Tax Authority is furnished.
44.2.	Price quoted shall be exclusive of service tax and CESS on service tax. The service tax, as legally leviable & payable by the contractor under the provisions of applicable law/act, shall be paid by BHEL as per contractor's bill. However, contractor shall have to submit proof of service tax deposited by them immediately after the deposit but not later than the next bill submitted after the due date of deposit. The contractor shall furnish proof of Service Tax registration with Central Excise Division covering the services covered under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by contractor on BHEL for this project. The contractor shall obtain prior approval of BHEL before billing the service tax amount. With introduction of CENVAT credit rules 2004 which came into force w.e.f.10.09.2004, excise duty paid on input goods including capital goods used for providing the output service and service tax paid on input service can be taken credit of against the service tax payable on output service. As such, while offering the rates, the contractors may take into account the benefit of above provisions as the cost of input to contractors will be the cost net of excise duty and service tax and adjust their offer price accordingly to make it more competitive.
44.3.	Contractor shall get his organization registered with concerned Sales Tax / VAT authorities within 15 days of award of this contract. The delay on this account and delay in bringing the material shall be to contractor's account and no extension of time shall be allowed on this account. The Sales Tax/VAT registration for this contractor shall be forwarded to BHEL within 30 days from the date of LOI. In case the contractor is already registered for Sales Tax/VAT with Govt. Authorities he must quote his registration no, while submitting their tender.
44.4.	Contractor has to make his own arrangement at his cost for completing the formalities, if required, with Sales Tax/VAT Authorities, for bringing their materials, plants, and equipment at site for the execution of the work under this contract as applicable.
44.5.	In case the Government imposes any new levy/tax after submission of offer by the contractor but before price bid

Clause No	DESCRIPTION
	opening, the contractor shall immediately bring the same to BHEL notice. Impact of such taxes/levies will then be considered by BHEL for loading on the quoted price for Tender evaluation and ordering purpose. New taxes/levies coming into force after price bid opening will be payable by BHEL at Actual. No additional payment/recovery on account of increase/decrease in the rates of existing taxes, levies etc shall be made.
44.6.	Works Contract Tax (WCT): If any WCT is applicable same shall be included in the quoted price. WCT may be recovered by BHEL while processing payment to the successful bidder
45.	EXTRA WORK:
45.1.	BHEL may consider for payment of extra works on man hour basis at Rs. 30/-(Rupees Thirty Only) only for such of those works which:
45.1.1.	Require major revamping or rework and which are totally unusual to normal erection work.
45.1.2.	Require rectification / modification for improvement in the design during commissioning,
45.1.3.	Requiring fresh fabrication of components in place of rejected / replaced components.
45.2.	The rates indicated for above type of works, shall include over time, if any, consumables, supervision, use of tools and tackles and other site expenses and incidentals.
45.3.	The extra works, if any, shall be carried out by a separate gang or beyond working hours which can be identified for certification of man hours. Log book/Records should be maintained and should be signed jointly by the contractor's representative and the BHEL Engineer on day to day basis. However, signing of the log book/records does not necessarily mean acceptance of the extra works which would be identified by BHEL Engineer whether work is covered in one of the above categories. Only those works and man-hours which are certified by the BHEL Engineer-in-charge, will be considered for payment. The decision of BHEL in this regard shall be final and binding on the contractor.
45.4.	Extra works arising out of contractors fault will be carried out by the contractor free of cost. Material and consumable will be arranged by the contractor for such instances. This is applicable even during Warranty period also.
45.5.	Erection work (like sheet metal cutouts for housing consoles, Monitors, Alarm facia, TB modifications in LIRs, small structural works, Mosaic items like Meters, facia fixing etc) if not covered in the rate schedule specifically but essential for completion of work will be considered for payment on man hour basis which will be at the discretion of BHEL. Activity which takes less than 40 man hours does not qualify for payment. Single average man day rate of 8 hours including overtime if any and other site expenses and incidentals, including tools and tackles and supervision required but excluding consumables will be Rs 200/- (Rupees Two Hundred Only) & the rate with consumable will be Rs 320/-(rupees Three hundred and twenty only). BHEL Engineers estimation on the man hours required for carrying out such jobs is final and Binding. The work will be supervised by contractor's supervisor / Engineer for whom this rate is not applicable / Payable.
46.	PRICE VARIATION / QUANTITY VARIATION
46.1.	The finally accepted rates for scope of work as defined in this tender shall be FIRM for the entire contract period. No price variation on accepted unit rates is allowed. Contractor may take into these factors for a competitive quote.
46.2.	The quantity in the rate schedule for Panels, cables, JB's, Cable Tray etc are subject to variation being a R&M project. The contractors may consider these aspects while quoting. Quantity variation may be in either direction. Revision in rates due to any quantity variation is not admissible.
47.	RATE SCHEDULE
47.1.	Contractor shall fully understand equipment description and scope of work before quoting. The scope of work and responsibility of the contractor as mentioned under these specifications shall be covered within the quoted rates / price.
47.2.	The Bidder shall quote the rates / Price as per the rate schedule only, in part II price bid (Original). Conditional price bids or price bids with any deviation / clarification etc. are liable to be rejected. No cutting / erasing / over writing shall be done.
47.3.	Contractor's total quoted price as per rate schedule will be taken as tentative only. The quantities indicated against certain items may vary to any extent which is usual in R&M Projects and no compensation will be payable in variation of individual quantity. The contractor undertakes to erect / commission actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually erected at site and payments will also be regulated for the same.
	Contractors shall take above into account while quoting the unit rates quoted as per Rate Schedule so as to take care of such variation during execution stage
48.	INSTRUCTIONS TO BIDDER
48.1.	Offers received should be complete with data / information required to be submitted in all aspects. All these data / information should be duly supported by documentary evidences
48.2.	No deviations to the tender conditions will normally be accepted
48.3.	The Bidders are advised to actually visit the site and fully acquaint themselves with site conditions, location of stores, transportation routes, quantum of work etc. before quoting their rates for this work. BHEL shall not be responsible in any way for non-familiarization of site conditions. Once the Bidder has quoted for the work, it is implied that he has ascertained various site condition and NO CLAIM whatsoever will be entertained by BHEL on any such account (refer Annexure-4).
48.4.	The contractor in the event of this work awarded to him, shall establish a site office at site and keep posted an

Clause No	DESCRIPTION
	authorized responsible officer who should hold a valid power of attorney for the purpose of the contract. Any order or instruction of the BHEL Engineer or his duly authorized representative shall be communicated to the contractor's representative at site office and the same will be deemed to have been communicated to the contractor at his legal address.
49.	LIQUIDATED DAMAGES (LD)
49.1.	For delay in completion of work attributable to the contractor, the LD shall be applicable at the rate of 0.5% of the contract value per week of delay or part thereof limited to a ceiling of 10% of the contract value.
50.	SECURITY DEPOSIT
50.1.	The contractor shall submit Security Deposit within 15 days from the date of issue of LOI as per the General Conditions of Contract (GCC) and as indicated in the LOI. In case the contractor opts to furnish Bank Guarantee as a part of Security Deposit, the BG shall be issued as per the Proforma enclosed as per Annexure-14 of the GCC and also that the BG should be issued preferably through any of the Member Banks listed along with the proforma (in the annexure).
	Security Deposit refund will be applicable after Guarantee period completion.
	The security deposit BG value will be calculated based on the contract value including the taxes like service tax, WCT etc.
	For BG issued through any other Nationalized Bank (Not covered in the list of Member Banks of GCC), the discretion of its acceptance shall lie solely with BHEL.
51.	Pre-Shutdown activities and Deployment of Man-Power
51.1.	It may be noted that the proposed R&M activities are to be executed in a project under operation, wherein the period of shutdown is to be kept minimum. The entire commissioning activities will have to be completed in minimum possible shut-down period. The contractor with sufficient man-power should be available at the site for carrying out the following activities as and when required by BHEL
51.1.1.	Erection of new cable trays / sub-trays and cable laying.
51.1.2.	The panels which are not in use at present (as identified by BHEL / BHEL'S CUSTOMER) shall be dismantled and new DCS panels to be erected in their places.
51.1.3.	New DCS panel erection at the identified location where shutdown is not required.
51.1.4.	Mounting of LIEs / LIRs, Junction Boxes, Local relay boxes where ever feasible.
51.1.5.	Laying of all cables off-line and termination at new cabinets end, new JB's end, and inter-cabinet wiring of new DCS system (cabinet which are erected in available spaces as above). Wherever spare contacts are available in process switches / feedback limit switches etc., the same shall be connected to the system.
51.1.6.	The erected DCS system cabinets shall be powered on and tested.
52.	OTHERS
52.1.	In case of any contradiction between General Conditions of Contract (GCC) and Special Conditions of Contract (SCC), on any clause the latter shall prevail.
52.2.	The Bidder shall specifically confirm that he has inspected the site of work and is fully conversant with the prevailing conditions under which work is to be executed and will not raise claim of any nature due to lack of knowledge of site condition (Refer ANNEXURE-4). He will also confirm that local taxation laws at the site have been clearly understood by him. The contractor shall also conform to the safety regulations applicable at the plant and other statutory stipulations enforced. The contractor has to comprehensively insure all his personnel (Temporary and Permanent) against accident, Loss of life etc. including third party liability. In case the contractor uses a vehicle inside the plant / BHEL'S CUSTOMER premises, all the necessary documentation like Valid Vehicle RC (book / card), Insurance and Tax paid receipt / challan shall be available in the vehicle.
	Contractors to conform compliance to Employees PF and miscellaneous provisions act, 1952. Registration with PF authorities and furnishing of code Number is a must. In case of any exemption an attested copy of authority for such exemption is to be furnished. In the event of failure to comply with the provisions of the said act and recoveries if affected from BHEL by the customer or the authorities will result in recoveries from contractor's Payments.
	The final bill amount could be released only on production of clearance certificate from PF / ESI and labor authorities as applicable. Final bills for payment submitted by contractor will be accompanied by the following.
52.2.1.	Copies of wage paid to workmen as per contract labour rules.
52.2.2.	Copies of monthly return of PF Contribution with remittance challans as per EPF Act 1952.
52.2.3.	Copy of valid WC insurance policy or copies of monthly return of ESI contribution with challans under ESI act 1948 (if applicable).
52.2.4.	In case of any dispute pending before the appropriate Authority under any of the act involving labor/workmen BHEL reserves the right to hold such amounts from the final Bills which will be released on submission of proof of settlement of issues from the appropriate authorities under the various acts. In cases where the dispute is prolonged / pending before various authorities for any reasons the Contractor has to submit an INDEMNITY BOND indemnifying BHEL against any claims without prejudice to the rights of BHEL for final bill payment.

SECTION - III: SPECIAL CONDITIONS OF CONTRACT - PART-B

INDEX

Clause	Description
53.	Scope of work
54.	Erection
55.	Testing, Pre-commissioning, commissioning and post- commissioning
56.	Finish painting
57.	Facilities to be provided by BHEL / Contractor
58.	Time schedule
59.	Over Run
60.	Terms of payment
61.	Scope of work for stores Management and commissioning Assistance.
62.	Terms and conditions of Reverse Auction

Clause No	DESCRIPTION
53.	SCOPE OF WORK
53.1.	Scope of these specifications cover complete work of issuing, transportation of materials from Project storage yard / stores to erection site / place of erection , storage at erection site, preservation, watch and ward, dressing, chipping and leveling of foundations, cleaning , dismantling of old field equipment/ Panels, checking, testing, pre-assembly, erection, calibration, alignment, grouting, welding, preservative / touch-up painting including supply of paints etc., earthing of equipment, including other activities required for erection, testing, commissioning, trial operations, Warranty maintenance & assist BHEL in handing over of all C&I equipment and items indicated in the rate schedule for 3X200MW units at NTPC KORBA.
53.1.1.	The scope of work will also include providing services of qualified and experienced Diploma / degree electrical / Instrumentation Engineer for the commissioning activities of the system / plant as suggested by BHEL. The qualification & experience of the Engineer shall be subject to acceptance of the BHEL Engineer in charge. These personnel shall be provided exclusively for assistance to BHEL. These Engineers shall be reporting directly to the BHEL Engineer In charge for the main work. No separate payment shall be made for providing the services as per this clause.
53.1.2.	The contractor under this contract shall also provide services of Technicians exclusively for use by BHEL. No separate payment shall be made for providing the services as per this clause.
53.1.3.	The contractor under this contract shall also provide services of Semi-skilled/ Unskilled manpower exclusively for use by BHEL where ever necessary. No separate payment shall be made for providing the services as per this clause.
53.1.4.	This Manpower requirement may vary depending on the activities at site. The purpose of this manpower is for meeting the pre-commissioning, commissioning, post commissioning and trial operation activities as required by BHEL i.e. up to the 15 th day of achievement of full load of Unit.
	In case contractor fails to provide above mentioned manpower, BHEL shall have the right to hire such services from other agencies at the risk and cost of the contractor.
	In case the manpower is needed by BHEL beyond the contractual schedule, contractor shall provide the same and the rates will be mutually decided for the respective category. Payment will be made by BHEL only for the extended period. Decision of BHEL in this regard is final & binding on the Contractor. It is preferred that the contractor maintains the same set of manpower as long as the requirement is needed by BHEL.
	Persons so deployed under SCC 53.1.1, 53.1.2 to 53.1.3 shall have to work in extended hours, Sundays & Holidays whenever required. Workman provided as per the above provisions shall be fully trained and experienced in the nature of work for which they are deployed
	Format for monitoring of attendance & record keeping methodology for manpower supply shall be discussed with & approved by Site in charge of BHEL. However each RAB is to be accompanied by the Engineer in charge's certification that commissioning assistance is provided under clause 53.1.1, 53.1.2 & 53.1.3
53.2.	The scope of work shall also include the following within the quoted item rates:
53.2.1.	Re-rolling of cables on drums as required by site engineer.
53.2.2.	Providing missing hardware / substitute hardware's and clamps.
53.2.3.	Grouting by port land cement including material and arrangement is to be made by the contractor.
53.2.4.	Providing supports for impulse lines, instruments, air lines, cable trays wherever required by fabricating at site. Required material for these will be provided by BHEL & all consumables including gas, welding electrodes etc. to be arranged by the contractor.
53.2.5.	Obtaining provisional and final approvals from Electricity Authorities & Obtaining all clearances and permits from statutory authorities for the installation.
53.2.6.	Pre-commissioning check up to ensure correctness of erection.
53.2.7.	Testing and Commissioning including preparation of test reports.
53.2.8.	Rectifying defects, if any, and making adjustments as necessary.
53.2.9.	Obtaining Engineer's approval and BHEL's written acceptance of satisfactory performance and operation.
53.2.10.	All the field items/ devices, panels, Junction Boxes that are supplied by BHEL are to be installed and commissioned as per attached bill of materials. Providing manpower assistance along with testing instruments to BHEL commissioning Engineers for Testing & Commissioning activities also forms part of work scope.
53.2.11.	Printed pipe ferruling to be done at all termination endings. The wire ends to be lugged with suitable sized lugs as per terminal strip. The terminal strips are indicating type and fused.
53.2.12.	Spare cables to be ferruled and dressed at both ends.
53.2.13.	Any mechanical modification needed to install and commission any field instrument / devices shall have to be carried out by the bidder.
53.2.14.	Any specific work, which is not mentioned in the scope of work but, required to be carried out for completion of subject work is in the bidder's scope.
53.3.	The scope of work also covers all performance tests related to pre commissioning and commissioning of the system by BHEL necessary to ensure that workmanship confirms to relevant standards and that such tests are adequate to demonstrate that the installations complies with the requirements of the customer specification. The

Clause No	DESCRIPTION
	contractor will assist BHEL in this.
	All arrangement for conducting these tests are to be made by contractor within their quoted rates and tests may have to be repeated to satisfy BHEL / BHEL's customer.
53.4.	Contractor to ensure services of qualified and experienced Degree / Diploma Electronics / Instrumentation Engineer having experience in respective field, entirely for Erection and commissioning activities from the First day of mobilization till contract completion of a UNIT and so on. This shall be indicated separately in man power deployment plan to be submitted by contractor. These Engineers shall be reporting directly for Technical matters to the BHEL Engineer and will carry out works in areas as per the work schedule. Engineers shall be supported by other workmen like Electrician, Technicians, helpers etc. Sufficient manpower along with supervisory staff for carrying out work will be ensured at all costs. Contractor to ensure minimum qualified man power availability during the entire contract period as deemed fit by BHEL after demobilizing the majority manpower after Trial run of a UNIT for warranty and AMC periods as defined in the contract between BHEL and BHEL customer.
	BIDDER will also have to deploy suitable Skilled / unskilled manpower for Exclusive use of BHEL for commissioning assistance of DCS and HMI during the contract period. This Manpower will be deployed at BHEL discretion to work in any of the 3 Units at NTPC-KORBA stage 1 during the R&M activities. Knowledge in field troubleshooting in a DCS environment will be desirable. There will be a requirement to work in shifts also. The rates quoted in the Rate schedule applies to this requirement. No major Programming or software modification expertise is envisaged. However knowledge and skill in identifying field problems and equipment problems from CRT is a must. BHEL will however decide the Time frame and requirement of this manpower and the period for which the deployment will be effected.
53.5.	The brief description of major equipment/ items to be erected, tested and commissioning under the scope of subject work are described in BOQ (annexure 1). However change in design / specification may occur as is usual in any such large work for which no compensation will be payable. Contractor shall complete the entire work as detailed in tender specification within the contractual rates. In case during testing, commissioning, post commissioning, trial operation, warranty period if the IR values of electrical equipment is found low, the contractor shall make arrangements and dry out the equipment within the quoted rates. Removing & reconnection of equipment will be the part of scope at no extra cost to BHEL.
53.6.	Contractor shall dismantle, erect, test, commission all the field equipment, cabinets, panels, instruments etc. as per sequence prescribed by BHEL Engineer at site. The sequence of dismantling / erection / commissioning methodology will be decided by the BHEL Engineer depending upon the availability of materials / work fronts etc. No claim for extra payment from the contractor will be entertained on the grounds of deviation from the methods of erection / commissioning adopted in Dismantling / erection / commissioning of jobs elsewhere or for any reasons whatsoever. For some of the equipment, Erection supervision or Commissioning expertise will be arranged by BHEL. The details against such item are indicated in the BOQ (Annexure-1). However all assistance with sufficient manpower, required tools and facilities (like temporary power supply, Lighting, Scaffolding etc) required shall be provided by the contractor.
53.7.	BHEL customer may depute their representative for checking and supervision of important stages of work. The contractor shall be required to provide all facilities for inspection of works, without any cost implications to BHEL. Any defect in quality of work or deviations from drawings / specifications pointed out during such inspection shall be made good by the contractor in the same way as pointed out by BHEL Engineer, without any cost implication to BHEL.
53.8.	Contractor shall plan and transport equipment / components from storage yard sheds to erection site and erect them in such a manner and in a sequence that material accumulation at site should not lead to congestion. Contractor shall plan activities considering plying of his vehicles on road also. Materials shall be stacked neatly, preserved and stored in the contractor's shed and work areas in an orderly manner. If required, the contractor shall arrange shifting of surplus material expeditiously failing which the same will be arranged by BHEL at contractor's risk and cost.
53.9.	The Contractor shall arrange for transportation and handling field mounted instruments from stores to the place of installation or his stores. When handling field mounted instruments, care should be taken to avoid damage to the instruments. These instruments referred are scope of this specification only.
53.10.	Before erection, all instruments shall be subjected to calibration and other functional checks as per manufacturer's standard at Contractor's site laboratory in presence of BHEL's authorized representative. BHEL and Contractor shall jointly decide the details and modalities of such checks and calibration.
53.11.	Contractor shall perform minor repairs, adjustments of the instruments under the supervision of the BHEL's authorized representative. Once the defective instrument has been successfully repaired it shall be subjected to calibration and functional checks, as indicated above.
53.12.	Cable installation work shall mean erection of branch/main cable trays/racks, supports, hangers, junction boxes, conduits, laying of cables on branch / main trays or inside trenches tunnels/overhead trays, etc. dressing and clamping, jointing and termination inclusive of supply of necessary jointing/termination kits, lugs, glands, ferrules, tapes etc. and other accessories, grounding of cable armor.
53.13.	Any internal wiring of the equipment which has been left incomplete because of shipping split or which requires minor modifications shall be carried out by the Contractor at no extra cost to BHEL.

Clause No	DESCRIPTION
53.14.	All erection work shall be carried out in strict compliance with manufacturer's instructions and shall include all necessary adjustments, checks and measurements.
54.	ERECTION
54.1.	All works such as cleaning, checking, leveling, aligning, assembling, temporary erection for alignment, dismantling of certain equipment for checking, cleaning, surface preparation, fabrication at site, cutting, grinding, straightening, blue matching, chamfering, filing, chipping, drilling, machining, surface grinding, shaping, fitting up etc. as may be applicable in such erection works are to be treated as incidental to erection and necessary to complete the work satisfactorily and shall be carried out by the contractor as part of the work.
54.2.	Any fixtures, scaffolding materials, concrete block supports, steel structures required for temporary supporting, for pre-assembly or checking, welding, lifting and handling during pre-assembly and erection shall be arranged by contractor at his cost.
54.3.	The following provisions cover the technical requirements for some of equipment installation. The brief idea about the work involved is indicated below & the work is to be carried out in accordance with the recommendations of the equipment manufacturer drawings, documents furnished to the contractor by BHEL or as directed by BHEL Engineer. The BOQ (annexure-1) with details of supply of Equipment are to be referred.
54.3.1.	<p>CONTROL PANELS (MAX CONTROL PANEL, UCP, ECP, Relay panel, Transducer panel, UPS, ACDB, DCDB, HART panel, slave clocks, Network panel etc.)</p> <p>Erection at site / control room including chipping of floor, fabrication and fixing of base channel frame if required , leveling & alignment with spirit level, welding the base channel to the embedded plates / channels, grouting , fixing of anti-vibration pads, termination of inter panel connections, mounting / connections of loose instruments, inter panel bus bar connections, commissioning upto Power supply integrity. Power supply connections from DCDB/ACDB to Control panels, Erection and commissioning of slave clocks including cabling involved for inter connection to master clock.</p> <p>Terminations of Instrumentation cables will be screw less in DCS panels and in JB's however in case of relay cabinets, control desk items, at sensor end etc it will be by conventional screw connections, wire wrapping and crimping connections as the case may be. Checking of internal wiring, rectification, testing and calibration of equipment mounted inside is in the scope of contractor. The contractor may have to change / replace items found defective with a new item without any extra cost, however materials for this shall be provided by BHEL. All lugs, fasteners, tools and consumables required shall be arranged by Contractor.</p> <p>Mostly panels will be delivered fully wired. However wherever required termination of loose wires, bus wires is to be done. Canopy for panels will be supplied loose & shall be installed by the contractor after erection of panels. The cleaning of panels has to be done with electrical vacuum cleaner, besides conventional cleaning with brush etc.</p> <p>The drilling of holes in the gland plates for cable entry shall be part of cable erection. All blank holes / gaps in the gland plates / boxes etc. shall be properly sealed. The base frames shall be painted suitably. The contractor shall carry out the plugging and sealing of left out holes in the gland plates and other openings at the bottom of panels at his own cost by using good quality sealing material as advised by BHEL. Any minor alterations required in the bus bar arrangement, wiring in the panels / cubicles shall also form part of the work.</p> <p>During testing, commissioning, some equipment / modules may need replacement / repairs. All such replacements / repairs and assistance during commissioning and running of the unit till handing over to the Customer are part of the scope as some of the test / commissioning will have to be done after the machine is run on various loads.</p>
54.3.2.	<p>UPS / 24V DC BATTERY CHARGERS</p> <p>Erection of Panels after foundations checking / fabrication of base frames or stools (wherever applicable) and carrying out minor modification wherever required; Joining of panels, inter-panel cabling, Glanding, bus bar & earth bar connections, mounting of loose supplied items, commissioning assistance for Testing of complete board / calibration of all instruments and schemes; Dummy load test of Chargers including arranging of dummy load and temporary power supply etc. 630 Sqmm cables are to be used in several runs for interconnection of battery with Charger system. All glands and Lugs for power cabling will be part of BHEL supply. Drilling of Holes for glands is in contractor scope. Contractor will arrange for necessary tools and implements accordingly.</p>
54.3.3.	<p>DC BATTERY</p> <p>Erection of battery after assembly of battery stands, inter-connection of batteries and first charging; Capacity testing using dummy load and subsequent recharging (in case of failure of capacity test, the charging Discharging cycle is to be repeated). Erection of Battery Isolator Boxes and interconnection is included in Battery erection. Replacement activity of defective cells during warranty is also in contractors scope and price indicated is deemed to be inclusive of this work. Arrangement of all consumables for the above tests, filling of electrolyte is in contractor's scope. Batteries are to be erected on Teak wood stand which is a part of BHEL Supply</p>
54.3.4.	<p>CABLE RACK AND TRAY</p> <p>Cable trays shall be supplied either ladder, prefabricated, slotted or duct type. Cost of cable tray erection as per BOQ Cum Rate Schedule shall include fabrication of supports to suit site requirement, fixing of support in position by welding / bolting as per Engineers instruction, erection and fixing of cable trays and racks by welding or by bolts</p>

Clause No	DESCRIPTION
	<p>and nuts. Jointing of trays can be carried out by bolting / welding as per direction of Engineer. Contractor shall carryout cutting of tray only by Hacksaw for obtaining proper routing from standard lengths supplied. Materials for support fabrication like flats, channels, angles etc. shall be supplied by BHEL free of cost. The cutting & welding joints on trays will be painted by primer & Aluminum paint by the contractor including supply of paint within the erection price and no extra cost to BHEL. These cable trays may also be required for laying copper tubing, PLICKA type / GI flexible conduits, local cabling and metal temperature thermocouples.</p> <p>Beside above, angles / channels of various sizes may have to be fabricated / erected, for use on cable trays, from structural steel to be supplied by BHEL free of cost. Payment for fabrication / erection of these type trays shall be released as per applicable rates for structural fabrication.</p> <p>In many cases, trays are supplied with tray covers and fasteners. These covers have to be erected after completion of bottom cable tray and laying of cables ,tubes etc. The covers are to be properly secured on the bottom trays and no separate payment will be made for putting these covers. If required, GI / Al strip clamps to be used. All consumables excepting Structural Steel have to be arranged by Contractor.</p> <p>Cable tray numbering and marking to be provided every 10 mtr. And at each end of cable way and branch connection.</p>
54.3.5.	<p>CABLE LAYING</p> <p>Laying, dressing & clamping (by Nylon / PVC ties or Aluminum strips or any other method specified by BHEL Engineer) of the cables in the cable trays / angles. The final dressing of all cables laid by the contractor and in all cable trays erected by the contractor shall also be done with Nylon Cord / Aluminum strip. Cost of cable laying as per BOQ shall include the cost of Nylon / PVC ties & Aluminum strip required for dressing / clamping.</p> <p>The cables shall be laid in the cable trays and the route as given in the cable schedule. The contractor shall intimate the engineer in charge whenever the cable tray is filled. Extra cables if laid by the contractor due to mistake, the same shall be removed at no extra cost to BHEL.</p> <p>The cable run number shall be provided by punching Aluminum Tag plates and tying suitably with nylon ties (at both ends and at regular intervals of 5 meters as advised by BHEL Engineer) which shall be arranged by contractor at his cost. Indelible tags to be provided at all terminations, on both sides of wall or floor crossing, on each conduit / Duct / Pipe entry /exit and at every 20 mtr. In cable tray/ trench.</p> <p>While laying cables, existing cable tray covers and false flooring may require be removing and re-fixing. The same has to be done at no extra cost to BHEL.</p> <p>Cable clamping: All cables laid on trays shall be neatly dressed up & suitably clamped/ tied to the tray. For cables in trefoil formation, trefoil clamps shall be provided by the contractor at his cost.</p> <p>Road crossing: Cables to pass through buried high density PE pipes encased in PCC. At least 300 mm clearance shall be provided between</p> <ul style="list-style-type: none"> • HT power & LT power cable • LT power & LT control cable • LT control & Instrumentation cables. <p>UTP cables are to be laid and terminated between various panels. The cables will be cut as per requirement and RJ45 type jacks will be crimped at both ends for termination. These cables will be separately laid on a cable tray. All tools required will be arranged by the contractor.</p> <p>The screen of signal cables shall be run in insulated sleeve (of approved quality to be provided by the Contractor) and shall be terminated as per the instruction of the BHEL Engineer. All special tools and tackles like cable drum jack, roller etc are to be arranged by the contractor. Power cables and instrumentation cables are to be segregated and laid separately.</p> <p>In vertically stacked cable trays, the higher voltage cable shall be in higher position and instrumentation cable shall be in bottom tier of the tray stack. The distance between instrumentation cables and those of the other system shall be as follows:</p> <p>From 11KV / 6.6KV 3.3 KV tray system : 914 mm From 415V tray system : 610 mm From control cable tray system : 305 mm</p>

Clause No	DESCRIPTION
	<p>Laying of Optical Fibre Cables: Laying and dressing of OFC for interconnection of various systems within the power plant area shall be the scope of the contractor. Cable termination will be carried out by other agencies / cable supplier. However man power assistance for termination, Fiber testing and cable jointing shall be provided by the contractor. The cables shall be laid through cable trays, flexible / rigid conduits or directly buried in trenches as required by the locations / Site conditions.</p> <p>The civil works including excavation, covering with bricks, road cutting etc. shall be carried out by the contractor. After cable laying the excavated area / roads shall be refilled and restored by the contractor. Supply of all materials for civil works like bricks, sand, cable route markers, preparation of pits etc shall be carried out by the contractor including within the quoted rate.</p> <p>The approval of customer's field quality department /engineer may be required. The same shall be carried out by the contractor at no extra cost to BHEL.</p>
54.3.6.	<p>MEASUREMENT OF INSTRUMENTATION CABLES</p> <p>The methodology for measurement of instrumentation cables laid by the contractor shall be as under.</p> <ul style="list-style-type: none"> • The lengths shall be measured from terminal to terminal plus height plus depth of the panels. Only one left over cut length of cable from each cable drum shall be acceptable. • The contractor shall hand over cut length of cable from each cable drum and cut pieces / scraps to the employers stores or any place identified by the employer. • The bidder shall keep a proper record drum wise and submit to engineer in charge periodically the details of cables laid. Separate records shall be kept for BHEL'S CUSTOMER supplied cables and BHEL supplied cables. <p>The scope of work shall also include the following within the quoted item rates</p> <ul style="list-style-type: none"> • Re-rolling of cables on drums as instructed by site engineer. • Return of cut pieces & scrap cables to the scrap yard / BHEL'S CUSTOMER stores as directed by engineer in charge
54.3.7.	<p>CABLE TERMINATION</p> <p>a) For Cables, the Cost of Cable Laying as per BOQ Cum Rate Schedule shall also include the cost of Termination with Suitable Crimping Type Lugs and Ferrules. Only Cable Glands Shall Be Issued By BHEL as Free Issue Item. Drilling of holes in gland plates of DCS panels, Marshaling Panels, relay panels and various panels in Control room, HT / LT switch gear, etc. as per requirement shall also be part of cabling at no extra cost to BHEL. The ferrules will of sleeve type and contractor will arrange for printing machine for printing of tags.</p> <p>b) The contractor shall carryout insulation testing, simulation testing etc. as per the instructions of Engineer at site.</p> <p>c) Screen of signal cables shall run in insulated sleeve (to be arranged by contractor at no extra cost) and shall be terminated as per the instructions of the BHEL Engineer.</p>
54.3.8.	<p>JUNCTION BOX /CJCB</p> <p>Includes assembly / fabrication, welding of semi-prefabricated limbs of the racks / cable ducts / other related supporting structural parts, chipping of floor and grouting etc. drilling of bottom gland plates for cable entry and earthing with earth pads. For fabrication of steel items Hacksaw cutting or shearing by machine only is permitted. Bidder may note that fabrication / fixing / painting of structure including paint and other consumables will be included in structural steel fabrication work as per item rate for structure work.</p>
54.3.9.	<p>IMPULSE LINE(AS / CS / SS)</p> <p>The impulse line work comprises of Identifying the proper type (refer specification) of Impulse pipe, cleaning with wire brush and compressed air, edge preparation, cold bending, laying to the required slopes, clamping, installation of isolation / drain valves, condensate pots and other fittings by socket welding, connecting with the process end and to the instruments, carrying out NDT, Hydraulic testing the impulse lines, and painting the lines as per requirement of BHEL engineer. Proper tagging of valves and impulse lines on both ends shall be done for proper identification. Painting of impulse lines with primer and with final paint of color as per BHEL'S CUSTOMER standards including supply of paint is in contractor's scope. Flow elements are provided with SS root valves. Welding of these SS root valves with AS /CS impulse pipes is to be carried out within the quoted rates for Impulse pipes. The rate quoted per meter shall include all the above work.</p> <p>For steam and liquid measurement, the impulse pipe should be preferably slope downward from source connection to instrument and instrument shall be installed below the source point. And for impulse piping for air and flue gas shall slope upwards and instrument shall be installed above source point. All impulse piping for shall be installed to permit free movement due to thermal expansion, whenever wherever required expansion loops should be provided</p> <p>Pre heating, Post weld Heat Treatment and Non Destructive Tests are to be carried out for welding of</p>

Clause No	DESCRIPTION
	impulse pipe with specification ASTM A 335 P91 SCH XXS..
54.3.10.	<p>INSTRUMENTS (TRANSMITTERS / GAUGES / SWITCHES /TEMPERATURE SENSING ELEMENTS LIKE RTDs & THERMOCOUPLES)</p> <p>For instruments supplied loose, the scope includes calibration, erection (including fabrication and fixing of frames / stands by welding to steel structure or by chipping & grouting with RCC columns / floor or by using anchor bolts of proper size including supply of anchor bolts upto M12) and charging / loop checking. The work includes installation of housing connecting manifold / valve on supports / racks to be suitably fabricated for the instruments being supplied loose.</p> <p>For instruments supplied duly mounted on skids/racks, the scope includes dismantling from skids / racks, reinstallation after testing / calibration, restoring electrical connections, if any, pressure testing of connected piping and charging / loop checking. Servicing of manifolds PG valves shall also form part of erection job within the quoted prices.</p> <p>Some instruments may need repeated calibration / replacement. The same will be carried out by the contractor at no extra cost to BHEL including calibration of instruments needed for replacement, which will be supplied by BHEL. Erection of thermo elements like RTDs & Thermocouples includes erection of thermo wells, wherever required, at no extra cost to BHEL. Tags on all the instruments will be provided by the contractor as directed by BHEL Engineer at no extra cost to BHEL.</p> <p>Seal welding of thermo wells is deemed to be included in the installation of Themowell. Contractor shall arrange to weld the thermo wells by following procedures as per BHEL's Customer / BHEL requirement. Further any cleaning / re-threading required for fixing thermo wells is also part of contractors work.</p>
54.3.11.	<p>DETECTORS / VIBRATION , SPEED & OTHER TURBOVISORY PICKUPS:</p> <p>Blue matching with the assembly fixtures / main equipment surface, trial fixing, fixing by drilling / tapping, final doweling. Moreover some detectors may have piggy-backs signal detectors mounted on them as such these forms part of detectors assembly. The integral cables of the above shall be routed & dressed properly up to their JB / Proximeter. Erection of proximeter's, proximeter housings / JB required for respective pick up and calibration / commissioning of pick-ups will be included in quoted / accepted item rate of respective pickup.</p>
54.3.12.	<p>PNEUMATIC TUBES (COPPER / SS TUBING) :</p> <p>Fabrication and erection of single angle supports / tray supports for single / multi run tube. Laying tubes in the angles / trays from the panel to the equipment, instrument to instrument, air supply line to drive / instrument, air line connections, clamping properly as per standard ferruling and termination at both ends. This includes all fittings and needle valves, stop valves etc. also. Proper tagging of valves and pneumatic tubes on both ends shall be done for proper identification.</p> <p>No extra charges will be claimed by contractor for any modification carried out after laying of pneumatic tubes / draft pipe lines due to site requirement in general.</p>
54.3.13.	<p>RIGID PIPE/CONDUITS/ Air-line pipe :</p> <p>Cutting / threading of standard lengths of conduits, laying on fabricated supports or on floor, using screwed fittings, clamping, sealing of open ends. Approved Good quality sealant shall be supplied by the Contractor to make the joint water proof.</p>
54.3.14.	<p>PLICA FLEXIBLE CONDUIT</p> <p>Laying of conduits in cable trays, end connection with instrument / J.B. / panel, using suitable connectors / unions etc. (which shall be supplied by BHEL).</p> <p>Suitable thread / PLICA sealant shall be used to make the conduit system water proof. Aluminum painting, clamping and tagging in tray / angle forms part of erection job.</p>
54.3.15.	<p>COMPUTER BASED EQUIPMENTS</p> <p>All computer related items / equipment like Operator work station, Engineering station ,LVS controller, HART, etc comprising of CPU, CRT monitors, printers, key boards, pre-fabricated connecting leads ,Mouse ,Key board, UPS etc shall be installed in control room on CRT desk as per direction of BHEL Engineer. The cost of installing a PC set including printer, monitor, UPS, interconnecting leads etc installation as per BOQ Cum Rate Schedule shall also include the cost of installation / placement of furniture (to be issued by BHEL as free issue item) as per requirement / instruction of BHEL Engineer. The Software installation and commissioning is not included in the scope of this contract. However, any assistance required for testing / commissioning have to be provided by the contractor within the quoted price. Hardware found defective (during testing / commissioning and till handing over to Customer), have to be removed for repair / replacement and reinstalled etc will be covered within the quoted rates.</p>
54.3.16.	<p>Removal of Existing Panels :</p> <p>Some of the existing panels are to be removed from each of the units. The panels may be single suit or any other combination. The numbers may vary. For all practical purposes the contractor to quote the rates based on Length/width irrespective of height and depth and also weight. The panels removed are to be handed over to</p>

Clause No	DESCRIPTION
	BHEL'S CUSTOMER including items mounted on the door, Inside etc to the place indicated by them. Care to be taken during transportation to avoid any damage.
54.3.17.	<p>Removal of Existing cables and JB :</p> <p>Cables and JB for removal have to be identified, Tagged for removal/re use and removed from both ends of terminal points by the contractor. Cables of assorted sizes are involved. Cables could be armored or Un-armored. Damaging of cable to be avoided as far as possible. Only cables identified for removal will be removed. The removed cables will be measured, segregated, identified and finally handed over to BHEL'S CUSTOMER to the place indicated by them. Some of the removed cables will be re used. Some of the cables will be re routed. Contractors to take note of the above</p>
54.3.18.	<p>LIEs / LIRs Erection</p> <p>LIEs in Boiler area to be erected at various elevations as per drawing or as per instruction of BHEL engineer. Erection involves leveling & alignment with spirit level, welding the base to the boiler floor. Care should be taken that erection do not disturb the existing mechanical structures.</p> <p>For air and flue gas services the concerned LIE must be erected above the tapping point and for water and steam services the concerned LIE should be below the tapping point.</p>
54.3.19.	<p>Special instruments-</p> <p>Following equipment to be erected at boiler as per drawing and instructions provided by BHEL.</p> <ol style="list-style-type: none"> Fireball Flame scanners: . Discriminating flame scanners Flow element for HFO flow measurement. Adjustable flow switch SADC pneumatic actuators with POSITNERS & POSITION Transmitter E/P converters for SADC actuators. Replacement/ Up gradation of Aux PRDS AV-5 hardware to make suitable for interface with DCS. Boiler tube leakage system sensors. Electronic Water level indicators. Coal Bunker level measurement system. Flame camera system. Pneumatic corner valve in lieu of hydra-motor valves. Oil gun advance/ retract solenoid valves. Seal air fan discharge dampers and emergency suction damper solenoids. HOTV/HORV dual coil solenoid. Speed pick up Probe & toothed wheel mounting.
54.3.20.	<p>Fiber optic cable works :</p> <p>These cables are to be laid (refer 54.3.5 cable laying) which includes laying and Termination. Commissioning assistance has to be extended by the contractor under instructions from BHEL.</p>
	Activity under 54.3.19 & 54.3.20 have to be done in shortest possible time, hence adequate manpower mobilization will be required.
54.3.21.	<p>CRT desk and Computer Tables:</p> <p>These are Modular Furniture type which will be assembled by the Vendor of this furniture. Contractor scopes involves transportation of material in this package, from place of Storage To Erection location in Control room in packed condition, and provide man-power assistance for erection to the BHEL vendor. The same applies to LVS rack and LVS displays. Commissioning assistance to be provided during commissioning.</p>
54.4.	Any minor cutting/chipping of masonry work, which is necessary shall be done by the contractor at his own cost and shall be made good to match the original work. The Contractor shall obtain prior approval before cutting any masonry / concrete work.
54.5.	Conduits shall be thoroughly cleaned before pulling in the cable.
54.6.	Contractor shall fabricate and erect stands / supports for Junction boxes, push button stations, including fixing of push button, plugging of holes in Junction boxes etc.
54.7.	Calibration log-sheets / history cards of all the instruments, panels, drives, relay testing etc. under the scope shall be recorded and submitted on BHEL approved formats. Proper logging will form a part of calibration / erection activity for the purpose of monthly running bills payments. This record keeping and attestation by BHEL engineers is part of the contractors work.
54.8.	DRIP SHIELDS shall be fabricated for all field mounted panels / instruments / instrument racks / JB Racks / control cabinets etc. The hardware / material shall be supplied by BHEL.
54.9.	The contractor shall use only SHEARING machine or HACKSAW for cutting angles, flats, channels and trays. No gas cutting is permitted. Drill machine shall be used for drilling holes.
54.10.	The contractor should note that after execution of work they will hand over marked up drawings "as erected"

Clause No	DESCRIPTION
	drawings to BHEL Engineer at site for preparation of firm "as built" drawings. "As erected" drawings will bear the signature of BHEL Engineer and contractor.
54.11.	The contractor shall paint the name / put tag numbers on all the equipment / instruments / cables etc. erected by him. Materials for tagging shall be supplied by contractor at his cost. The adhesive etc. shall be arranged by contractor at his cost.
55.	TESTING, PRE-COMMISSIONING, COMMISSIONING AND POST-COMMISSIONING.
55.1.	Site testing shall be required for all equipment installed by the contractor to ensure proper installation, setting, connection and functioning in accordance with drawings, specifications and manufacturer's recommendations.
55.2.	Commissioning protocols are to be prepared as advised by BHEL Engineer for getting approved by customer.
55.3.	Testing, and pre-commissioning checks shall be as per relevant codes / practices and BHEL drawings / specifications/ approved commissioning Protocols and same shall include, but not be limited to the following:
55.3.1.	<p>BATTERY AND BATTERY CHARGER</p> <ul style="list-style-type: none"> a. Checking of battery charger panel. b. Calibration of all indicating and measuring instruments. c. Dummy load test of battery charger. d. Charging of battery and recharging after carrying out battery discharge test/ capability test of battery using dummy load. e. In the absence of regular power supply to battery chargers, arrangements are to be made for battery charging from temporary construction power supply points.
55.3.2.	<p>CONTROL PANELS</p> <ul style="list-style-type: none"> a. Checking of complete wiring and insulation resistance. b. IR test and loop checking of all field wiring in the panel. c. Checking of all protection, metering and indicating schemes. d. Calibration of all indicating and measuring instruments, relays, timers. e. Checking of all auxiliary schemes e.g. space heating, illumination. f. Checking of operation of all relays, switches and other indicators. g. Commissioning of total scheme including relevant internal equipment. h. Carrying out suitable modifications as per system requirement.
55.3.3.	<p>DRIVES AND CONTROLLERS</p> <ul style="list-style-type: none"> a. All drives such as power cylinders, pneumatic/motorized valves/dampers etc. and controllers shall be checked for proper installation supports before commissioning b. All transmitters shall be calibrated. c. All pneumatic and impulse lines shall be cleaned as per instructions of BHEL Engineer. d. All drives shall be operated by simulating various conditions to ensure healthiness of components of the system. e. Re-calibration/rectification wherever required shall be carried out by the contractor within quoted rates. f. Remote operation of all drives , valves, dampers, transducers, solenoids shall be checked from control room as per instruction of BHEL engineer.
55.3.4.	<p>INSTRUMENTATION</p> <ul style="list-style-type: none"> a. All existing instruments/field cables and associated copper tubes need to be removed b. All instruments shall be checked for proper installation, supports, impulse lines, cabling etc and corrected wherever required. c. All instruments shall be calibrated before installation and proper calibration record shall be maintained to the satisfaction of BHEL Engineer. Instruments received in assembled condition in panels etc. shall be dismantled, calibrated and re-assembled as per advice of BHEL Engineer. d. All impulse and pneumatic lines shall be properly cleaned(oil flushed/chemical cleaned/air blown/steam blown/Hydraulic tested etc) before being charged. e. Some of the instruments may require re-calibration during Commissioning. The contractor shall remove such instruments, re-calibrate and install within the quoted rates.
55.4.	<p>During erection, prior to commissioning and after commissioning of the equipments, protocols have to be made with BHEL's customer. The Proforma and formats as approved have to be printed by the contractor in adequate numbers.</p> <p>The pre-commissioning activities will start with various trials, commissioning operations shall continue till units are handed over to customer. Simultaneous commissioning activities will be in progress in various areas, checking of equipment erected, making ready for trial runs. All the works covered under this specification need specialized gangs including electricians / instrument technicians in each area to render assistance to BHEL commissioning</p>

Clause No	DESCRIPTION
	staff. Contractor shall earmark separate manpower for various commissioning activities. The manpower shall not be disturbed or diverted.
55.5.	It shall be the responsibility of the contractor to provide workmen of various categories in sufficient numbers along with Engineers/ Supervisors including necessary consumables, T&P etc. during pre-commissioning, commissioning of equipment and attending any problem in equipment erected by the contractor till handing over. The rates quoted shall include all these contingencies also.
55.6.	It shall be specifically noted that the above employees of the contractor may have to work round the clock along with BHEL commissioning Engineer and hence overtime payment by the contractor to his employees may be involved. The contractor's accepted rates shall be inclusive of all these factors also.
55.7.	In case, any rework is required because of contractor's faulty erection which is noticed during commissioning, the same has to be rectified by the contractor at his cost. If any equipment / part is required to be inspected during commissioning, the contractor will dismantle / open up the equipment / part and reassemble/redo the work without any extra claim.
56.	FINISH PAINTING
56.1.	All surfaces are to be thoroughly cleaned and applied with paint with suitable approved primer / finish paint matching with shop paint / approved final color. Besides above two coats of approved primer paint and at least two coats of approved finish paint to get the desired dry film thickness, is to be applied on various loose equipment, and structures fabricated and erected at site. All paints, tools and other consumables including scaffolding materials required for painting shall be arranged and provided by contractor within the quoted rates. Paint and other materials so purchased shall be ISI marked and painting should be as per colour scheme and quality approved / specified by BHEL. The contractor shall provide legend on equipment in size specified by BHEL Engineer. Letter writing shall be done in Hindi / English or in both languages. Only qualified painters will be allowed to work. All structural fabrication work are to be painted. For panels in control room touch up painting by spraying is to be arranged by contractor at his cost.
57.	FACILITIES PROVIDED BY BHEL to CONTRACTOR
57.1.	BHEL shall provide limited open space for office at site free of charge subject to BHEL'S CUSTOMER Concurrence. It is the responsibility of the contractor to construct sheds, provide all utilities like electricity, drinking water etc. He is to dismantle and clear the site after completion of work or as and when required within the accepted rates. The contractor to furnish his requirements on appointment.
57.2.	The Contractor shall be responsible for providing all necessary facilities like residential accommodation, transport, electricity, water, medical facilities etc. at his own cost as required under various labor laws and statutory rules and regulations framed there for the personnel employed by him.
57.3.	The contractor shall submit to the Engineer his electrical power requirements. Construction power shall be provided free of charge at one point near erection site as required and to be decided by Engineer. Contractor at his cost shall do further distribution. All wiring must comply with local regulations and will be subject to Engineer's inspection and approval before connecting supply.
57.4.	Water for construction purposes shall be provided free of charge at a one point. Contractor shall arrange further distribution of water for construction purposes.
	NOTE: THOUGH BHEL IS GETTING THE CONSTRUCTION POWER AND WATER ON FREE OF CHARGE BASIS FROM THE CUSTOMER THE CONTRACTOR SHALL ENSURE THAT THERE IS NO WASTAGE. THE CONTRACTOR MAY HAVE TO INSTAL A METER FOR THIS PURPOSE. PERIODICAL AUDITS WILL BE HELD TO ENSURE THAT THESE RESOURCES ARE BEING OPTIMALLY USED. IN CASE ANY WASTAGE IS OBSERVED BHEL RESERVES THE RIGHT TO RECOVER ANY CHARGES / PENALTY AS DEEMED FIT TO BE DECIDED BY BHEL ENGINEER. In case of penalty levied on BHEL for the above, the same shall be deducted from contractor's payment. Contractor will have to provide insulated cables for power distribution and jointing (if any) will have to be done with proper jointing kits .
57.5.	Provision of distribution lines of both electrical power and water from the central points to the required place, with proper distribution boards observing the safety rules laid down by the electrical authorities of the state shall be done by the contractor. Supplying all the materials like cables, distribution board, switch boards, TPN, CBS, ELCBS/ MCCBS / Copper / Brass clamps, copper conductor, change over switches pipes etc. are to be arranged by contractor at his own cost. If any failure is caused in supply of the power and water, it is the responsibility of the contractor to make alternate arrangements at his cost. The contractor shall adjust his working shifts / hours accordingly and deploy additional manpower if necessary so as to achieve the targets.
57.6.	Following points should be adhered to by the contractor while drawing construction power supply from Distribution Board.
57.6.1.	All electrical installations should be as per Indian Electricity rules.
57.6.2.	All distribution Boards installed by the contractor should be constructed with fire proof materials viz. steel frames,

Clause No	DESCRIPTION	
	Bakelite sheets etc.	
57.6.3.	Connection for single phase should be taken from phase and neutral. Nowhere the connection should be taken with earth as neutral.	
57.6.4.	All electrical connections should be made through connectors, nuts and bolts, switches, plug and sockets. Loose connections or hooking up of wires shall not be permitted.	
57.6.5.	Contractor has to make their own earthing arrangement for their equipment / DB earthing. Earth connections have to be done with copper conductor and copper / brass clamps with BHEL's prior permission. All electrical equipment / tools and plants should be properly earthed. DBs to be earthed diagonally opposite at two points.	
57.6.6.	Contractor should use "MCCB" and "ELCB" either on incoming or outgoing connections to the DBs.	
57.6.7.	Contractor should ensure that all the CBs / TPNs / Fuses / MCCB / ELCB cables etc. should be of adequate rating/ capacity.	
57.6.8.	For permission of supply connections contractor has to submit a test report of their installations with a single line diagram of connected / proposed loads.	
57.6.9.	ELCB will be tested once in a week or as deemed fit by BHEL Engineer by actually simulating the earth leakage for all installations and the same shall be recorded by BHEL Engineer in the log book to be maintained by the contractor.	
57.6.10.	In case of power cuts / load shedding no compensation for idle labour or extension of time for completion of work will not be given to contractor.	
57.6.11.	Adequate lighting facilities such as flood lights, hand lamps and area lighting shall be arranged by the contractor at the site of construction, contractor's material storage area etc. within finally accepted rates.	
57.6.12.	On completion of work or as and when required by BHEL, all the temporary buildings, structures, pipe lines, cables etc. shall be dismantled and levelled and debris shall be removed as per instruction of BHEL by the contractor at his cost.	
57.7.	In the event of his failure to do so, same will be got done by the Engineer and expenses incurred shall be recovered from the contractor along with prevailing overhead. The decision of BHEL Engineer in this regard shall be final.	
58.	TIME SCHEDULE	
58.1.	The contractor is required to commence the work within 10 days from the date of issue of letter of intent unless BHEL decides to fix any other later date. However, the actual date of start of work, to fix up zero date of the contract, will be certified by BHEL Engineer after adequate mobilization of manpower and T&P by the contractor.	
58.2.	UNIT-3 work is scheduled for Shutdown in September - 2014. The total Erection and commissioning activities are to be completed within 45 Days from Start of shut down. The warranty period for the Unit will be for One Year after Trial run completion of 14 days. The warranty period defined above indicates the period contracted by BHEL with BHEL'S CUSTOMER.	
58.3.	MILESTONE EVENTS	
	Activities	Completion date
58.3.1.	Date of Issue of LOI	START date of this contract
58.3.2.	Intimation of Shut down	ZERO date
58.3.3.	Removal of Existing Panels	Within 10 Days from Zero date
58.3.4.	Removal of Existing Cables	Within 15 Days from Zero date
58.3.5.	Erection of DCS ,HMI ,LVS, charger etc	Within 25 Days from Zero date
58.3.6.	Field erection and Cabling	Within 30 days from Zero date
58.3.7.	Commissioning of DCS, HMI, Chargers etc	Within 45 days from Zero date
58.3.8.	Attending to post-commissioning works	Within 60 days from Zero date
58.3.9.	Handing over of Dismantled items, system stabilisation, rework etc if any	Within 90 days from Zero date
58.4.	Contractor is required to mobilize enough resources required to meet above Schedule within their quoted price. The Schedule is likely to get compressed depending on requirements due to power situation prevailing in the state. The contractor to take a note of this. No Compensation will be applicable if the schedule is compressed to reasonable limits which is deemed fit by BHEL.	
58.5.	The work under the scope of this contract is deemed to be completed in all respects, only when the contractor has discharged all the responsibilities laid down in the contract. The decision of BHEL on completion date shall be final and binding on the contractor.	
59.	Overrun	

Clause No	DESCRIPTION
	<p>In case due to reasons not attributable to the contractor, the work gets delayed and scheduled completion gets extended, the contractor shall not be entitled for any overrun compensation for a period of first 180 days after the contractual completion date. In case the scheduled completion time gets extended beyond 180 days as stated above, the contractor shall be considered for payment of fixed Over Run Charges from 181st day onwards @ Rs. 30,000/- (Rupees Thirty thousand only) per month on receipt of advance notice intending to claim over run & on fulfillment of following conditions:-</p> <p>(a) The reasons for delay in completion of work are not attributable to contractor but however subject to the provisions of relevant clauses of General Terms and Conditions.</p> <p>(b) The targets fixed during the overrun period are achieved by contractor.</p> <p>Once the claim of Overrun charges is admitted no other compensation whatsoever will be entertained like delays in receipts of materials, availability of fronts etc.</p> <ul style="list-style-type: none"> The contractor shall maintain sufficient workforce and other resources required for completion of the job expeditiously for the entire contractual period including total extended period. BHEL at its discretion may continue the contract or pre close the contract irrespective of the fact that the entire work is completed or not. The decision of BHEL is final & binding on the contractor.
60.	TERMS OF PAYMENT
60.1.	The 'Engineer' will certify regarding the actual work executed in the measurement books and bills which shall be accepted by the Contractor in Measurement Book.
60.2.	Contractor shall submit bills for the work completed under the specification, once in a month detailing work done during the month. The format for billing shall be approved by BHEL before raising invoices. 16 th of previous calendar month to 15 th of current calendar month will be considered as a Month.
60.3.	All payments shall be released from BHEL Bangalore. The process of certification at site and forwarding the bill to Bangalore and dispatch of payment to contractor is expected to take 30 to 35 Days. BHEL will however put efforts in minimizing this delay. Contractor is advised to take note of this and ensure labor payments in time every month. Non receipt of payment /delay in payment from BHEL cannot be reason for contractor to delay in payment of wages to workers.
60.4.	Subject to any deduction which BHEL may be authorized to make under the contract, the contractor on the certificate of the Engineer at site is entitled for payment as explained hereunder:
60.4.1.	Dismantling:
60.4.1.1.	For equipment dismantling: 70% of item rate shall be payable on pro rata basis as certified by Engineer in Charge.
60.4.1.2.	20 % of the item rate value shall be payable on pro rata basis on handing over the dismantled items at designated place of BHEL's Customer.
60.4.1.3.	Last 10% of the item rate value of work on completion of all pending works, reworks, material reconciliation, area cleaning and fulfillment of contractual obligations and on submission and passing of Final bill certified by Engineer in charge
60.4.2.	Cable removal :
60.4.2.1.	60% of item rate shall be payable on pro rata basis as certified by Engineer in Charge.
60.4.2.2.	30% of item rate shall be payable on pro rata basis as certified by Engineer in Charge after identification, tagging and handing over at designated place of BHEL's Customer.
60.4.2.3.	Last 10% of the item rate value of work on completion of all pending works, reworks, material reconciliation, area cleaning and fulfillment of contractual obligations and on submission and passing of Final bill certified by Engineer in charge
60.4.3.	Installation, Commissioning of new equipment
60.4.3.1.	70 % of item rate shall be payable on pro rata basis on erection of equipment as certified by Engineer in charge . The Protocols for erection completion and calibration records duly signed by BHEL Engineer are to be furnished along with the monthly Bill.
60.4.3.2.	20 % of the item rate value shall be payable on pro rata basis on completion of pre commissioning checks of equipment as certified by Engineer in charge .
60.4.3.3.	Last 10% of the item rate value of work on completion of all pending works, reworks, material reconciliation, area cleaning and fulfillment of contractual obligations and on submission and passing of Final bill certified by Engineer in charge
	The bills with all enclosures shall be submitted along with the checklist as per Annexure-20 including Attendance certification by BHEL Site in charge.
	<p>The payment for the First running bill will be released only after production of copies of following certificates:</p> <ul style="list-style-type: none"> PF Registration / membership certificate Labour License (Form V till license is obtained) as applicable Workmen compensation Insurance policy valid for the entire contract period ESI Registration certificate valid in the state of Chattisgarh

Clause No	DESCRIPTION
	The payment will be made only through EFT. The details are to be furnished as per the format ANNEXURE-18
	In case any upward Variation in quantity occurs, the payment for the difference in quantity will be processed after the completion of the scheduled mile stone activities (refer clause 58.3)
61.	SCOPE OF WORK FOR STORES MANAGEMENT, COMMISSIONING ASSISTANCE
	<p>The manpower assistance required for stores maintenance. A regular clerk cum storekeeper is to be provided by the contractor for maintaining stores records like day book, stock register, verification, identification, stacking for easy retrieval, keeping records of issue of material and forecasting requirement of erection hardware, submission of weekly stock reports, weekly Material receipt details, material reconciliation with BHEL's customer, assistance in Handing over mandatory spares to BHEL's customer and assisting BHEL Engineers for insurance claims and for clerical work at BHEL site office. The person should have proper qualification to work as store keeper and possess knowledge of data entry in computer. The person provided by contractor should be available for the entire period till closing of site stores / final reconciliation. Contractor to ensure that the person assigned for this work is available continuously at site.</p> <p>The manpower support assigned for commissioning work shall continue and should be made available with tools and IMTE for Maintenance work during warranty period. BHEL has the option to avail the Manpower support from the contractor for AMC period coverage beyond the Contractual period and Over run period if any, as defined elsewhere in this tender.</p>

REVERSE AUCTION

Clause No	DESCRIPTION
62.	BHEL may resort to "REVERSE AUCTION PROCEDURE" i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).
62.1.	For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
62.2.	Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit "online sealed bid" in the Reverse Auction. Non-submission of "online sealed bid" by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
62.3.	BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
62.4.	In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained for participation in the Reverse Auction.
62.5.	Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
62.6.	Bidders have to fax the Compliance form (That shall be furnished later) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
62.7.	In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" which is inclusive of all cost elements in line with terms & conditions of the tender for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
62.8.	Reverse auction will be conducted on scheduled date & time.
62.9.	At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
62.10.	The lowest bidder has to fax / e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, as provided on case-to-case basis to Service provider within two working days of Auction without fail.
62.11.	In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice without seeking anymore price Impacts on account of BHEL not going for Reverse Auction. Hence please quote your best lowest price in first instant itself.
62.12.	Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the "Business Rules of Reverse Auction", which will be communicated before the Reverse Auction.
62.13.	If the Bidder or any of his representatives are found to be involved in Price manipulation / cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
62.14.	The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
62.15.	In case BHEL decides to go for reverse auction, the H1 bidder(s) (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

PROVISIONAL BILL OF MATERIALS / QUANTITIES

SI.No	ITEM DESCRIPTION	Unit of Measurement	Qty.
1	DDCMIS PANELS Panels are in single / two / three or five panels per suite formation. Work includes fixing canopy. Panel installation is at CER in Main plant, Remote I/O locations etc.		
2	Cubicle (Dimensions - L X B X H: 750X800X2415 mm) - Approximate weight = 400 Kg.	Nos.	15
3	Cubicle (Dimensions - L X B X H: 1500X800X2415 mm) Approximate weight = 800 Kgs.	Nos.	25
4	Cubicle (Dimensions - L X B X H: 2250X800X2415 mm) Approximate weight = 1200 Kgs.	Nos.	9
5	Cubicle (Dimensions - L X B X H: 3750X800X2415 mm) Approximate weight = 2000 Kgs.	Nos.	1
6	Electrical Control panel housing synchronizing hardware (Shifting of panels from stores, Erection of panel)		
7	CBW01 (Dimensions - L X B X H: 750X800X2415 mm) - Approximate weight= 400 Kg. - Metering panel	Nos.	1
8	CWB02 (Dimensions - L X B X H: 750X800X2415 mm) - Approximate weight= 400 Kg. - Synchronising hardware panel	Nos.	1
9	HMI ITEMS - Shifting of materials from stores to place to Erection and providing assistance for commissioning.		
10	Work Stations PC's with accessories keyboard and mouse etc.	Nos.	27
11	A3/A4 Color Laser printer	Nos.	9
12	Mini UPS for PC's at Main Plant	Nos.	11
13	Large Video Screens (LVS)- Man power assistance for shifting of materials from stores to place of Erection & also during commissioning.		
14	Large Video Screens(LVS) with other related accessories	Nos.	6
15	HMI Items for STATION LAN at Main Plant Control Room		
16	Server PCs for Station Wide LAN System with accessories like keyboard, mouse etc.	Nos.	7
17	UNIT CONTROL DESK & RACKS - Shifting of material from stores and providing assistance to BHEL's Vendor.		
18	Arc shaped Unit Control Desk (7 X 1.2 sq.m area) at Main Control Room	Nos.	1
19	Arc shaped Unit Control Desk (4 X 1.2 sq.m area) at DM Plant	Nos.	1
20	Arc shaped Unit Control Desk (4 X 1.2 sq.m area) for Unit In-charge in Main control room	Nos.	1
21	LVS PC rack - Dimension: L X B X H : (2600 X 750 X 1600)mm	Nos.	1
22	Computer Table for Work Station (2100 X 928 mm) at Main Plant	Nos.	3
23	Computer Table for Work Station (2100 X 928 mm) at Station LAN area	Nos.	3
24	Computer Table for Work Station (2100 X 928 mm) at DM Plant	Nos.	1
25	Printer Table (850 X 750 mm) at Main Plant	Nos.	2
26	Printer Table (850 X 750 mm) at DM Plant	Nos.	1
27	Computer Table	Nos.	15
28	Operator Chairs	Nos.	39
29	SLAVE CLOCK SYSTEM : Scope includes Erection of panel at CER-1 and installation of JB's and Display Units. (Associated Cabling covered under Clause R of Price schedule) and providing man power assistance during commissioning is in Contractor's scope (Commissioning in vendor scope)		

SI.No	ITEM DESCRIPTION	Unit of Measurement	Qty.
30	Slave Clock panel - A Single cubicle of Dimension 800 mm X 800 mm X 2415 mm (WXDXH) and approx Wt.500 Kgs	Nos.	1
31	Slave Clock display Units (Location: Control Room, Control Equipment room, HT Switchgear, TG 0 mtr, Other Locations) -	Nos.	11
32	JB made of MS sheet, Dimension:105 mm(W) X 105 mm (H) X 40 mm (D).	Nos.	6
33	FLAME SCANNERS: Mounting of scanners at Windbox / Burner, racks provided as loose items and Laying of Cable from Scanner to Scanner Racks mounted at Control room- supervision & commissioning by BHEL		
34	Fireball Flame Scanner with Head Assembly, Dimension - Length 78" with Approximate Weight 6 Kgs	Nos.	20
35	Flame scanner Amplifier Chassis - 19" Rack Assembly (Approximate Wt. 9 Kgs)	Nos.	5
36	Tripple Shielded Cable - Size 1.3 Sq.mm	Mtr	6000
37	6 Way FRP Miniature JBs	Nos.	20
38	SADC system: Erection of power cylinders and SS/Cu tubing wherever necessary. Cu /SS tubes and necessary accessories like Nipples, Valves, Hose, Tee etc. will be supplied by BHEL		
39	SADC Pneumatic Power cylinder / actuator (3" X 5") with Positioners	Nos.	52
40	Air Filter Regulators	Nos.	13
41	Pressure Switches	Nos.	13
42	E/P converters	Nos.	13
43	Solenoid Valves	Nos.	16
44	Acoustic Steam Leak Detection system (ASLD) : Mounting of panel at main plant Control room and Sensors at various locations in boiler as per design with associated JBs erection (Associated Cabling covered under Clause R of Price schedule). - Supervision and Commissioning of system by BHEL		
45	Single Cubicle of size L X B X H : 800 X 800 X 2315 mm with an Approximate Wt. 300 Kgs	Nos.	1
46	Sensor assembly - Approximate Wt. 22 Kg	Nos.	20
47	48 Way FRP JBs	Nos.	8
48	Field Amplifier Box - A special Type of 16 Way JB	Nos.	20
49	Solenoid Valves for Auto Purging	Nos.	20
50	Electronic Water Level Indicator (12 port): Mounting of Pressure vessels, Ascetor Cabinet with Display Units. Laying of special type of Cable (PTFE) from Vessels to Ascetor Unit and Associated Power and Instrumentatin Cable laying is covered under Clause R of Price Schedule. Assistance to M/s BHEL'S CUSTOMER for Tapping from drum to Vessels and associated piping with Isolation valves. Isolation valves, Gaskets and Glands, Pipes etc. will be supplied by BHEL. Supervision and Commissioning by BHEL.		1
51	Pressure Vessel with Electrodes (12 Port) - Wt.125 Kgs	Nos.	2
52	Pressure Vessel with Electrodes (8 Port) - Wt.145 Kgs	Nos.	2
53	Ascetor Cabinet of Dimension: 600(H)X600(L)X350(W) mm and Approximate Wt.140 Kgs.	Nos.	4
54	10 Pair X 0.6 Sq.mm PTFE Probe Cable	Mtr.	90
55	Display Unit (12 PORT) of Dimension 194(H)X99(L)X81(W) mm and Wt. 2 Kg (Approx.) at Operating Floor and UCR	Nos.	4

Sl.No	ITEM DESCRIPTION	Unit of Measurement	Qty.
56	COAL BUNKER LEVEL MONITORING SYSTEM : Mounting of sensor with mounting pads, alignment device and JB. Laying of cables between sensor, JB and panel. Associated cable laying is covered under Clause R of Price Schedule. Tagging to be provided as per BHEL/BHEL'S CUSTOMER specifications. Bunker level monitoring panel - A single cubicle having dimensions 1000 mm X 400 mm X 1400 mm (W X D X H) with an Approx. Wt 500 Kg., Ultrasonic types Level sensor with counter mounting pads 6 Nos., Junction Boxes made from thermoplast material of Size LX B X D: 119 x 139 X 70 mm Qty. 6 Nos.	Lump-sum	1
57	FURNACE FLAME CAMERA SYSTEM: Erection of panel, assistance for camera installation with proper welding, piping works for air cooler system and during commissioning. All the Associated cable Laying (Power and Signal) and Commissioning of the System in Vendor Scope.		1
58	Flame Camera system Panel to be erected at CER / CCR Plus a WALL MOUNT Dimension: (WXDXH) 800 x 800 x 2415 mm Approximate Wt. 400 Kg	Nos.	1
59	Cameras with JB's	Nos.	4
60	FIELD INSTRUMENTS		
61	Positive Displacement Meter for HFO flow measurements in main line and return line with Associated Strainer, Matting Flanges, Pulse Amplifier for F to I Converter with Flame Proof Housing.	Set	2
62	Pneumatic corner valves	Nos.	36
63	Double coil solenoid valves (24 VDC) for Oil Gun Advance / Retract	Nos.	12
64	Double coil solenoids (24 VDC) for Seal air fan discharge dampers	Nos.	2
65	Single coil solenoid valve (24 VDC) for Emergency suction damper	Nos.	1
66	Double Coil solenoid valve (24 VDC) for Scanner air fan discharge dampers	Nos.	2
67	Double Coil Solenoid valve (24 VDC) for Ignitor Air Fan Discharge damper	Nos.	2
68	Double Coil Solenoid valve (24 VDC) for Hot Air gate	Nos.	6
69	Single coil solenoid Valve (24 VDC) for LOTV	Nos.	1
70	Dual coil solenoid Valve (24 VDC) for Pulvrizer discharge damper	Nos.	6
71	HOTV Single coil solenoid Valve (24 VDC) & HORV dual coil solenoid Valve (24 VDC)	Nos.	2
72	Impact head type flow element for Cooling Water Flow Measurement - : Scope includes complete installation of the unit with accessories.	Nos.	2
73	Low Temperature Oxygen Analyser: Mounting of Sensor/Probe with SS tubing between sensor and calibration unit, accessories and mounting of analyser and laying of cable between probe, analyser and calibration unit. Installation also includes JB erection (Structural steel for fabrication of JB mounting structure will be supplied by BHEL)	Nos.	2
74	Electro Pnuematic Smart positioners/position feedback transmitters : Manpower assistance to be provided for during installation and commissioning to BHEL Vendor. Associated Copper Tubing is covered under Clause Q of Price schedule and Cabling is covered under Clause R of Price Schedule	Nos.	34
75	Stator Water Conductivity Analyser : Mounting of Assembled unit on 2" 3" NB pipe with Sensor. Pipe, U-Clamps, Washers, nuts etc. will be supplied by BHEL. Associated Cabling is covered under Clause R of Price Schedule. Commissioning of System by BHEL / Vendor.		
76	Conductivity Analyser Unit	Nos.	2
77	TURBO SUPERVISORY SYSTEM : Erection of panel and mounting of sensors at TG as per erection guidelines & Quality plan of VENDOR and cables laying through conduits, JB mounting and laying of signal cables to control room		
78	Turbo Supervisory System with Marshalling panel - A suite of two panels (Dim 1600 mm X 800 mm X 2415 mm) Approx. Wt - 600 Kg	Nos.	1

SI.No	ITEM DESCRIPTION	Unit of Measurement	Qty.
79	Sensor with counter mounting pads for Differential expansion (HPT,IPT & LPT), Overall expansion (HP& IP Casing), Phase Mark, Axial Shift, relative vibration, absolute bearing vibration and speed for Main turbine and MDBFP	Nos.	38
80	Junction Boxes - FRP Body 5 Way, Dimension:139(L) X 119(H) X 70(D) mm	Nos.	4
81	Junction Boxes - FRP Body 8 way, Dimension: 210(L) X 310(H) X 116(D) mm	Nos.	6
82	Junction Boxes - FRP Body, Dimension: 160(L) X 200(H) X 98(D) mm	Nos.	3
83	Erection of Toothed Wheel for Speed sensing	Nos.	1
84	VIBRATION MONITORING SYSTEM: Providing assistance in Mounting of sensors and cable laying through SS conduit and assistance to vendor during commissioning		
85	Vibration Monitoring System - For IDs, FDs, PAs, BFPs, CEPs: Panel to be Erected at CER (Dim 1600mm W x 800mm D x 2415mm H) Approx. wt = 600 Kg	Nos.	1
86	Sensor mounting pad (Dimension: 40 x 40 x 40 mm) for each pickup	Nos.	34
87	Key phasor mounting bracket	Nos.	11
88	8 WAY FRP Body JB Dimension : L X B X H -139 X 119 X 70 mm	Nos.	45
89	Vibration Monitoring System -For Cooling Tower (CT) Fans A single cubicle to be erected at remote CW Control Room (Dim 800mm W x 800mm D x 2415mm H) Approx. wt. = 300 Kg.	Nos.	1
90	Sensor mounting pad (40 x 40 x 40 mm) for each pickup	Nos.	16
91	6 WAY FRP Body JB Dimension : L X B X H -139 X 119 X 70 mm	Nos.	16
92	Temperature Elements (TE) - The work involves mounting of RTDs in cooling tower fans		
93	RTD for Gear Box temperature monitoring system for CT fans	Nos.	16
94	ELECTRICAL POWER SUPPLY SYSTEM		
95	24V DC Power system along with DCDB for offsite and Remote I/O system with Batteries : All interconnections, arranging load testing, Commissioning assistance to vendor for battery charging / discharging and load testing.		
96	24 V DC 500 AMPS CHARGER FOR SG/TG PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 800 KGS AND DIMENSION 2000(H) X 1600 (W) X 800 (D) mm	Set	2
97	BATTERY FOR 24 V DC SG/TG CHARGER COMPRISING 2 X 19 CELLS (KPH 520 P) OF 520 AH APPROXIMATE WEIGHT OF EACH CELL 44.8 KG & DIMENSION OF EACH CELL 345(L) X 195(W) X 405(H) mm.	Set	2
98	24 V DC 250 AMPS CHARGER FOR BOP PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 2000(H) X 1600 (W) X 800 (D) mm AND COMMON DCDB PANEL - 1 PANEL APPROX WT. 400KG AND DIMENSION 1500(H) X 800 (W) X 800 (D) mm.	Set	2
99	BATTERY FOR 24 V DC BOP CHARGER COMPRISING 1 X 19 CELLS (KPH 520 P) OF 520 AH APPROXIMATE WEIGHT OF EACH CELL 44.8 KG & DIMENSION OF EACH CELL 345(L) X 195(W) X 405(H) mm.	Set	2
100	24 V DC 100 AMPS CHARGER FOR FOPH PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2
101	BATTERY FOR 24 V DC FOPH CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2
102	24 V DC 100 AMPS CHARGER FOR ASH SLURRY PLANT PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2
103	BATTERY FOR 24 V DC ASH SLURRY CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2

SI.No	ITEM DESCRIPTION	Unit of Measurement	Qty.
104	24 V DC 100 AMPS CHARGER FOR RW + CWPB PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2
105	BATTERY FOR 24 V DC RW + CWPB CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2
106	24 V DC 100 AMPS CHARGER FOR CT STAGE-I PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2
107	BATTERY FOR 24 V DC CT STAGE-I CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2
108	24 V DC 100 AMPS CHARGER FOR CT STAGE-II PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2
109	BATTERY FOR 24 V DC CT STAGE-II CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2
110	24 V DC 150 AMPS CHARGER FOR DM PLANT PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 650 KGS AND DIMENSION 2000(H) X 1600 (W) X 800 (D) mm.	Set	2
111	BATTERY FOR 24 V DC DM PLANT CHARGER COMPRISING 1 X 19 CELLS (KPH 315 P) OF 315 AH APPROXIMATE WEIGHT OF EACH CELL 24 KG & DIMENSION OF EACH CELL 176(L) X 195(W) X 405 (H) mm.	Set	2
112	UPS: Panel Erection, all interconnections within UPS panels, ACDB, Battery, etc. Acid / alkali filling for batteries. Providing Commissioning assistance to vendor.		
113	UN INTERRUPTED POWER SUPPLY SYSTEM RATING 70 KVA (UPS) COMPRISING 07 PANELS.a) UPS 1 & 2 (WT.OF EACH PANEL 1200KG) in a Suite of two, Approximate Dimensions 2800(W) X 900(D) X 2235(H) mm +b) SCVS (WT.OF PANEL 800 KG) Approximate Dimension 900(W)X 900(D) X 2235 (H) mm + c) ACDB 1 & 2 (WT.OF EACH PANEL 800 KG) Approximate Dimension 1200(W) X 800(D) X 2235(H) mm.d) STATIC SWITCH PANEL (WT.OF PANEL 250 KG) Approximate Dimension 700(W) X 800(D) X 2235(H) mm.e) BHMS-Battery Health Monitoring System (WT. OF PANEL 200 KG) Approximate Dimension 800(W) X 300(D) X 1500(H) mmf) MAINTENANCE BY PASS PANEL (WT. OF PANEL 250 KG) Approximate Dimension 440(W) X 800(D) X 2235(H) mm.WITH ALL INTER CONNECTION BETWEEN BATTERY, UPS & BETWEEN UPS PANELS.	Set	1
114	BATTERY BANK SYSTEM FOR ABOVE UPS COMPRISING APPROXIMATE 291 CELLS OF 330AH (KBH330P) WITH MS STAND. EACH CELL CELL DIMENSION APPROX 268 MM (L)X 195 MM (W)X 349 MM (H) APPROX WT. PER CELL 27 KG	Set	1
115	PROCESS CONNECTION AND PIPING		
116	Local Instrument Enclosure / Racks (LIE/LIR): Installation at various locations /elevations in Boiler/TG as per drawing / instructions of BHEL Engineer. DIMENSIONS in WDXH. Installation work includes fabrication of base frame using ISMC/ISA and welding on to the boiler structure(Supply of Angle/Channel in BHEL Scope).		
117	Local Instrument Enclosure -TYPE A -1250mm X 800mm X 2200mm WEIGHT 670 Kgs	Nos.	
118	Local Instrument Enclosure -TYPE B - 930mm X 800mm X 2200mm WEIGHT 550 Kgs	Nos.	36
119	Local Instrument Rack -TYPE A -1650mm X 800mm X 2200mm WEIGHT 650 Kgs	Nos.	16
120	Local Instrument Rack -TYPE B -1650mm X 800mm X 2200mm WEIGHT 520 Kgs	Nos.	25

SI.No	ITEM DESCRIPTION	Unit of Measurement	Qty.
121	IMPULSE PIPES: Identification, marking, stacking, cleaning, shifting to erection location, Erection, socket welding, Hydraulic testing, leak checking, etc primer & final painting (including supply of paints as per colour code of customer). All consumables like welding electrodes, testing materials, tags etc needed for the work to be supplied by vendor within the quoted price. Installation of all impulse line fittings including CONDENSATE POTS are considered as part of impulse line work. Welding allowed only by qualified welders accepted by BHEL/Customer and strictly as per approved welding procedure of BHEL/Customer. Only BHEL / Customer approved welding electrodes to be used. Installation work also includes fabrication of supports using ISMC/ISA and welding (Supply of Angle/Channel etc., in BHEL Scope).		
125	A106 Gr C 1/2" NB SCH 80	Mtr	2325
122	A106 Gr C 1/2" NB SCH 160	Mtr	300
123	A106 Gr C 3/4" NB SCH 80	Mtr	825
124	ASTM A106 Gr C 1" NB SCH 80	Mtr	38
126	A335 P22 1/2" NB XXS	Mtr	307
127	A335 P22 3/4" NB 80 SCH	Mtr	307
128	COPPER TUBING, SIZE: 1 / 4 " DIA.- Related brass fitting will be supplied by BHEL	Mtr	900
129	GI Pipe 1 / 2 "	Mtr	3000
130	CABLES: Meggering, laying of cables on cable trays, through Conduits, Flexibles, dressing, tagging, gland plate drilling, glanding, termination etc. All consumables like lugs, cable tags, Nylon ties, sleeves (SLEEVES OF REQUIRED COLOR & SIZE), Ferruling (with ferrule printing m/c) etc. to be provided by Vendor within the rates quoted. ONLY CABLE GLANDS will be provided by BHEL as free issue. Shield wire to be sleeved and terminated at panel end. Tagging to be provided as per BHEL/BHEL'S CUSTOMER specifications. Preparation of Protocols for every RA Bill and reconciliation of cables to be made by the Contractor.		
131	INSTRUMENTATION CABLES		
132	F TYPE 2 PAIR 0.5 Sq.mm cable	Mtr	1400
133	F TYPE 4 PAIR 0.5 Sq.mm cable	Mtr	16600
134	F TYPE 8 PAIR 0.5 Sq.mm cable	Mtr	4800
135	F TYPE 12 PAIR 0.5 Sq.mm cable	Mtr	4320
136	F TYPE 24 PAIR 0.5 Sq.mm cable	Mtr	2160
137	G TYPE 2 PAIR 0.5 Sq.mm cable	Mtr	5400
138	G TYPE 4 PAIR 0.5 Sq.mm cable	Mtr	18000
139	G TYPE 8 PAIR 0.5 Sq.mm cable	Mtr	10800
140	G TYPE 12 PAIR 0.5 Sq.mm cable	Mtr	3600
141	G TYPE 24 PAIR 0.5 Sq.mm cable	Mtr	2160
142	POWER / CONTROL CABLES		
143	1C X 630 sq.mm Aluminium, XLPE	Mtr	480
144	1C X 35 sq.mm, Aluminium, PVC	Mtr	840
145	1C X 120 sq.mm, Aluminium, PVC	Mtr	2700
146	2C X 6 sq.mm, Copper, PVC	Mtr	1020
147	2C X 2.5 sq.mm, Copper, PVC	Mtr	1020
148	2C X 70 sq.mm, Copper, PVC	Mtr	900
149	5C X 1.5 sq.mm	Mtr	4200
150	3C X 1.5 sq.mm	Mtr	5400
151	2C X 1.5 sq.mm	Mtr	5400

SI.No	ITEM DESCRIPTION	Unit of Measurement	Qty.
152	2C X 2.5 sq.mm UNARMoured	Mtr	1200
153	3C X 2.5 sq.mm UNARMoured	Mtr	1200
154	5C X 2.5 sq.mm UNARMoured	Mtr	720
155	OPTICAL FIBER CABLE - Optic fiber cables have to be laid on Cable trays, Conduits.		
156	OFC CABLE 4 CORE ARMoured	Mtr	3000
157	OFC CABLE 8 CORE ARMoured	Mtr	9000
158	OFC CABLE 12 CORE ARMoured	Mtr	1500
159	NETWORK CABLE: Laying, dressing using ties and crimping on both ends		
160	UTP CAT 5e CABLE (21 BUNDLES EACH BUNDLE OF 305 MTR.)	Mtr	6405
161	G.I. PERFORATED CABLE TRAYS: Installation work includes supports using ISMC / ISA and welding on to structure/fixing with fasteners (Supply of Angle / Channel in BHEL Scope). Fasteners in bidder's scope.		
162	CABLE TRAY OF Size: W X H X T - 600 X 100 X 2 mm	Mtr	1167
163	CABLE TRAY OF Size: W X H X T - 300 X 50 X 2 mm	Mtr	2100
164	CABLE TRAY OF Size: W X H X T - 150 X 50 X 2 mm	Mtr	1400
165	CABLE TRAY OF Size: W X H X T - 100 X 50 X 2 mm	Mtr	787
166	CABLE TRAY OF Size: W X H X T - 50 X 25 X 2 mm	Mtr	2450
167	CONDUITS: Installation in trenches,cable trays,along the walls ,dressing using saddles,Ties,tag plates etc .Fittings like bends,inspection bends etc will be supplied by BHEL. All consumables like saddles, mounting hardware, jumpers etc. for conduiting / flexibles to be arranged by contractor within the quoted rates.		
168	Rigid Conduit 50mm dia. (2")	Mtr	1000
169	Flexible Conduit 25 mm dia. (1")	Mtr	1000
170	HDPE conduit 50mm dia. (2")	Mtr	3333.
171	ERECTION OF JUNCTION BOXES (FRP Body): Installation work includes fabrication of mounting frame using ISMC/ISA and welding on to structure / fixing with fasteners (Supply of Angle / Channel in BHEL Scope). Anchor fasteners in bidder's scope.		
172	12 WAYS	Nos.	26
173	24 WAYS	Nos.	66
174	36 WAYS	Nos.	3
175	48 WAYS	Nos.	20
176	72 WAYS	Nos.	63
177	TT JUNCTION BOXES for Temperature Transmitters: Installation work includes fabrication of mounting frame using ISMC/ISA and welding on to structure/fixing with fasteners (Supply of Angle/Channel in BHEL Scope). Anchor fasteners in bidder's scope.		
178	6 WAYS RTD TT	Nos.	109
179	12 WAYS RTD TT	Nos.	51
180	TRANSMITTERS: Wherever standalone transmitters mounting is envisaged, fabrication of support in bidder's scope and required structural steel will be supplied by BHEL.		
181	Electronic Pressure Transmitters	Nos.	184
182	Differential Pressure Transmitters	Nos.	76
183	Guided Wave Radar type transmitters	Nos.	18
184	Single Input DIN rail mounted Temperature Transmitters	Nos.	728
185	Dual Input temperature transmitters with indicators	Nos.	50

SI.No	ITEM DESCRIPTION	Unit of Measurement	Qty.
186	TRANSDUCERS : Mounting of loose Transducers (DIN rail / base plate) inside panels at main plant / remote I/O's		
187	Current Transducers	Nos.	121
188	Voltage Transducers	Nos.	38
189	PF Transducers	Nos.	1
190	Frequency Transducers	Nos.	3
191	Power Transducers	Nos.	7
192	Temperature transducers	Nos.	8
193	Tap position Transducers	Nos.	2
194	HART MANAGEMENT SYSTEM: Job involved Panel erection and assistance to Vendor during Commissioning. Associated cabling is covered under Clause R of Price schedule.		
195	System Comprising of HART Management Panel - 01 No. Single Cubicle., Approx Wt. 300 Kgs and Dimensions 2415(H) X 800(W) X 800(D) mm.	Nos.	1
196	DISMANTLING WORK: Sub-contractor to hand over the below dismantled equipment to BHEL'S CUSTOMER in " as it is" condition after cleaning at the location identified by BHEL/ BHEL's Customer, within the plant premises.		
197	Existing / Old Panels	Nos.	82
198	Existing / Old cables, seggregating and shifting	Mtr	120000
199	Existing / Old field instruments, Junction Boxes as identified by BHEL/Customer.	Nos.	700
200	Existing / Old Cable Trays as identified by BHEL/Customer.	Mtr	5000

Indicative list - Panels to be removed

SL. No	ITEM DESCRIPTION	UNIT OF MEASUREMENT	Qty /Unit	Common Qty
1.00	Dismantling of panels as per tender			
1.01	Hydra STEP	nos.	01	
1.02	SADC	nos.	02	
1.03	FSSS	nos.	14	
1.04	ARP	nos.	06	
1.05	ACS H&B	nos.	08	
1.06	CJJ	nos.	09	
1.07	CCA	nos.	05	
1.08	ACS-BTC	nos.	02	
1.09	HPBP / Aux. PRS	nos.	02	
1.10	110VAC	nos.	02	
1.11	Mill Panel (Elect)	nos.	01	
1.12	220VDC	nos.	01	
1.13	HIRAL Charger	nos.	01	
1.14	DCDB	nos.	01	
1.15	DAS	nos.	09	
1.16	DAS-ANN	nos.	01	
1.17	Control Desk	nos.	03	
1.18	Chabbi Charger (0.0 mtr)	nos.	02	
1.19	UPS	nos.	07	
1.20	CSSAEP	nos.		01
1.21	Relay cabinets at DM water plant	nos.		02

OFFER FORWARDING LETTER / TENDER SUBMISSION LETTER

(To be typed and submitted on the Letter Head of the Company/Firm of Bidder)

Offer Reference No.:

Date:

To,
(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub: Submission of Offer against Tender Reference No.:Dated

I/We hereby offer to carry out the work detailed in the Tender Specification issued by Bharat Heavy Electricals Limited – Electronics Division, Bangalore, in accordance with the terms and conditions thereof.

I/We have carefully perused the following listed documents connected with the above work and agree to abide by the same.

1. Any Amendments/Clarifications/Corrigenda/Errata/etc. issued in respect of the Tender documents by BHEL
2. Notice Inviting Tender (NIT)
3. Techno-Commercial Bid
4. Price Bid

Should our Offer be accepted by BHEL for Award, I/we further agree to furnish 'Security Deposit' for the work as provided for in the Tender Conditions within the stipulated time as may be indicated by BHEL.

I/We further agree to execute all the works referred to in the said Tender documents upon the terms and conditions contained or referred to therein and as detailed in the appendices annexed thereto.

I/We have deposited/depositing herewith the requisite Earnest Money Deposit (EMD) as per details furnished in the Check List.

Authorised Representative of Bidder

Signature:

Name:

Address:

Place:

Date:

NO DEVIATION CERTIFICATE

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,

(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub: **No Deviation Certificate**

Ref: 1) NIT/Tender Reference No.: Dated
2) All other pertinent issues till date.

We hereby confirm that we have not changed / modified / materially altered any of the tender documents as downloaded from the website and in case of such observance at any stage, it shall be treated as null and void.

We also hereby confirm that we have neither set any Terms and Conditions and nor have we taken any deviation from the Tender conditions together with other references applicable for the above referred NIT/Tender Specification.

We further confirm our unqualified acceptance to all Terms and Conditions, unqualified compliance to Tender Conditions and acceptance to Reverse Auctioning process.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Place :

Date :

DECLARATION CONFIRMING KNOWLEDGE ABOUT SITE CONDITIONS

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

To,
(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub: **Declaration confirming knowledge about Site conditions**

Ref: 1) NIT/Tender Reference No:,
2) Any other related issues till date if any

I/We, _____ hereby declare and confirm that we have visited the Project Site as referred in BHEL Tender Specifications and acquired full knowledge and information about the Site conditions including Wage structure, Industrial Climate, the Law & Order and other conditions prevalent at and around the Site. We further confirm that the above information is true and correct and we shall not raise any claim of any nature due to lack of knowledge of Site conditions.

I/We, hereby offer to carry out work as detailed in above mentioned Tender Specification, in accordance with Terms & Conditions thereof.

Yours faithfully,

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Date:
Place:

DECLARATION FOR RELATION IN BHEL

(To be typed and submitted in the Letter Head of the Company / Firm of Bidder)

To,
(Write Name & Address of Officer of BHEL inviting the Tender)

Dear Sir,

Sub: **Declaration for relation in BHEL**

Ref: a) NIT/Tender Reference No.: Dated

I / We hereby submit the following information pertaining to relation / relatives of Proprieter / Partner(s) / Director(s) employed in BHEL

Tick (✓) any one as applicable:

1. The Proprieter, Partner(s), Director(s) of our Company / Firm DO NOT have any relation or relatives employed in BHEL

OR

2. The Proprieter, Partner(s), or Director(s) of our Company / Firm HAVE relation/relatives employed in BHEL and their particulars are as below:

- (i)
- (ii)

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Note:

1. Attach separate sheet, if necessary.
2. In case of choice 1 and If BHEL Management comes to know at a later date that the information furnished by the Bidder is false, BHEL reserves the right to take suitable against the Bidder / Contractor.

NON – DISCLOSURE AGREEMENT MEMORANDUM OF UNDERSTANDING

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

NIT/Tender Reference No.: **Dated**

BHEL EDN is committed to Information Security Management System as per Information Security Policy.

M/sproviding.....service to BHEL EDN Bangalore hereby undertake to comply with the following in line with Information Security Policy of BHEL EDN:

- Maintain Confidentiality of Documents & Information which shall be used during the execution of the contract.
- The Documents & Information shall not be revealed to or shared with third party who shall not be in the business interest of BHEL EDN.

Bidder's Name and Address

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Place:

Date:

INDICATIVE LIST OF T & P TO BE ARRANGED BY THE CONTRACTOR

SL No.	EQUIPMENT - T & Ps	QTY
1)	Pull Lifts & Ratchet hoist	Adequate nos.
2)	5 / 10 T Chain Pulley blocks	2 nos each
3)	Welding Transformers	2 nos.
4)	Welding generators	2 Nos.
5)	Gas cutting set	Adequate nos.
6)	Grinders	Adequate nos.
7)	Hydraulic Pipe Bending machine & Tube bending unit	3 No.s each
8)	Pedestal mounted Drill Machine (up to 36 mm)	2 nos.
9)	Hammer / Pistol Drill Machine	Adequate nos.
10)	Portable Compressor.	1 No
11)	Hydraulic Test Pump (1 no. up to 600kg/cm2)	2 No.
12)	Blower	1 No
13)	Vacuum Cleaner	1 No
14)	Electrician's standard tool kit	01 sets
15)	Fitter's standard tool kit	5 sets
16)	Hand pulling trailer	1 no.
17)	Torches	5 nos.
18)	Hot air blowers	1 no.
19)	Tap set including M 33	1 set
20)	Personal Computer with Printer	1 set
21)	Fire extinguishers	4 nos.
22)	Power hack saw / Angle cutting machine	1 no.
23)	Hand driven Trolley	1 no
24)	500V/1000V Megger	1 no.
25)	3 ½ Digits Digital Multi-meter	5 no.
26)	4 ½ Digits Digital Multi-meter	2 no.
27)	Decade resistance Box	1 no.
28)	Continuity tester	2 no.
29)	Ferrule Printing Machine	1 no.
30)	Cable detector	2 no.
31)	Crane- 15 / 18 T	As required for work completion
32)	Fork Lift / Trolleys	As required for work completion. Mechanised preferred.
33)	Electrode Oven (if needed)	Adequate nos.

NOTE:

- The above list specifies only major T&Ps (may not be the complete to be deployed by the contractor). All additional / other tools and plants in good and safe working conditions which are required for satisfactory & timely completion of work shall also be deployed by the contractor within finally accepted rates.
- In addition to above any winch / special crane is to be arranged by the contractor for erection work (For eg. Shifting of LIE / LIR in various elevations in Boiler area).
- EOT crane (125 MT) in TG Hall belongs to NTPC and will be issued on chargeable basis. Contractor has to make arrangement of this equipment usage at his own cost. BHEL EDN will assist contractor in obtaining above equipment at site for C&I construction purpose from NTPC on their terms and condition.
- Adequate facility for shifting / movement of panels from the place of storage to place of Installation is to be arranged by contractor at his own cost.
- Other terms and conditions regarding above items please refer clause 4 T&Ps / IMTEs clause in GCC.

Indicative list of IMTE to be arranged by the CONTRACTOR for C&I Calibration Laboratory to be set up by contractor at site

S.NO	DESCRIPTION	RANGE	ACCURACY	QTY
1.0	Dead Weight Tester	600Kg/cm ²	LC- 0.5Kg/cm ²	1 Set
2.0	Comparator test set with sub standard pressure gauges	0-1 kg/cm ² 0-4 kg/cm ² 0-6 kg/cm ² 0-10 kg/cm ² 0-25 kg/cm ² 0-60 kg/cm ² 0-250 kg/cm ² 0-400 kg/cm ²	+/- 0.25%LC -0.2 kg/cm ² -----do----- -----do----- -----do----- +/- 0.25% LC -0.2 kg/cm ² +/- 0.25% LC -0.2 kg/cm ² +/- 0.25% LC -0.2 kg/cm ² +/- 0.25% LC -0.2 kg/cm ²	1 Set
3.0	Variable DC regulated supply	0 – 30 V DC	+/- 0.2%	1 No.
4.0	Oil bath with thermostat ,stirrer and substandard glass Thermometers in multiple ranges	0- 600 deg C		1 Set
5.0	Glass U tube mercury manometer with standard steel scale having leveling arrangement	0-760 mm		1 no.
6.0	Glass U tube mercury manometer with standard steel scale having leveling arrangement	0-1000mm		1 no.
7.0	Inclined tube manometer	0-1000 mm		1 no.
8.0	mA /mV Source	0-200mA / 0-200mV		2 nos
9.0	Rheostat	100 ohm ,10A		1 no
10.0	Precision Digital multi-meter	4 1/2 Digits	0.2 % accuracy	2 nos
11.0	Precision Digital multi-meter	3 1/2 Digits	1.0 % accuracy	2 nos

Notes:

1. The above list of testing instruments/equipment required for testing / commissioning is only for guidance to contractor and not complete. Any other / additional testing instruments / equipment required for timely and satisfactory completion of job will also be arranged by contractor at his own cost.
2. Contractor must re-ascertain / recheck range and accuracy of each IMTE from BHEL Engineer well in advance before arranging calibration / deployment of IMTE's.
3. Other terms and conditions regarding above items shall be as per SCC clause - tools & plants / IMTE's.

FINANCIAL VIABILITY

Sl.No.	Description	Details / Comments
1.	Owner's Capital in the business (in case of partnership, please mention percentage shares and amounts.)	
2.	Financial Turnover (Quantum of business done) during last three financial years	INR :
		INR :
		INR :
3.	Value of fixed Assets of the business in the last three financial years.	INR :
		INR :
		INR :
4.	Guarantee Limits (If any) enjoyed by the firm	
5.	Over draft limits (if any) enjoyed by the firm	
6.	Please enclose audited profit and loss account and balance sheet for last 3 years (indicated no. of sheets).	
7.	Certificate from Scheduled Bank to prove Contractor's financial capacity (i.e. to undertake the work) duly indicating the financial limits the Bidder enjoys	

Bidders Name and Address

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Place:

Date:

ANALYSIS OF JOBS EXECUTED / IN PROGRESS

S.No	Agency by whom awarded	Location of project	Capacity & Unit nos.	Scope of work	Date of award	Contract Value
1	2	3	4	5	6	7

%age of work completed and due date for completion	Date of completion if job is already over	No of Skilled / Unskilled workers deployed at peak	No. of Engineers & Supervisors deployed at peak	Details of major T&P like Hydra, Hydraulic Jack and Hand Trolley supplied		Consumables supplied	
				By Contractor	By other Agency	By contractor	By other Agency
8	9	10	11	12	13	14	15

Bidders Name and Address

(Signature, Date & Seal of Authorized Representative of the Bidder)

Place:
Date:

Tools & Plant - Deployment Plan

STATUS OF TOOLS & PLANTS

Sl. No	Name of Equipment	Quantity owned	Registration No. wherever applicable	Documents enclosed for proof of ownership	Present location	Quantity proposed to be deployed for this job
1	2	3	4	5	6	7

MONTHWISE T&P DEPLOYMENT PLAN

S.No	Description of T&P	Month (Indicative list to be deployed in each month)				
		1 st	2 nd	3 rd	4 th	and so on
1.						
2.						
3.						
Total						

Bidder shall fill the above table as per the work schedule indicated in this tender elsewhere. However execution of work shall be carried out as per the actual shutdown plan of BHEL's Customer. Bidder shall not be eligible for any compensation on the grounds of advancement or deferment of shutdown schedule..

Bidders Name and Address

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Place:
Date:

MONTH WISE MANPOWER DEPLOYMENT PLAN

S.No	Category	No. of Person Available on Roll of the Organisation	Month (Indicative No. of Persons to be deployed in each month)				
			1 st	2 nd	3 rd	4 th	and so on
1.							
2.							
3.							
Total							

Bidders Name and Address

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Place:
Date:

ANALYSIS UNIT OF RATE QUOTED

S.NO	DESCRIPTION	PERCENTAGE OF THE UNIT RATE QUOTED	REMARKS
1.	Salary/Wages For Staff & Workers		
2.	Consumables		
a.	Gas		
b.	Welding Electrode		
c.	P.O.L		
d.	Others		
3.	Depreciation & Maintenance for T&P		
4.	Depreciation & Maintenance for other equipments		
5.	Establishment & Administration Expenses of site		
6.	Over Heads		
7.	Profit		

Bidders Name and Address

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Place:
Date:

DECLARATION by BIDDER

(To be typed and submitted in the Letter Head of the Company/Firm of Bidder)

I, _____ hereby certify that, all the information and data furnished by me with regard to this Tender Specification No. **Ref.: CE:ES:2013-14:07:KORBA-R&M:KP** are true and complete to the best of my knowledge. I have gone through the specification, conditions and stipulations in detail and agree to comply with the requirements and intent of specification.

I, further certify that I am the duly authorized representative of the above mentioned company and a valid power of attorney to this effect is also enclosed.

Bidder's Name & Address

(Signature, Date & Seal of
Authorized Representative of the Bidder)

Place:
Date:

BANK GUARANTEE FOR SECURITY DEPOSIT

B.G.NO.

Date:

THIS DEED OF GUARANTEE made and executed on the -----day -----of -----(Month)----- (Year), by the -----(Bank Name, Address) registered under the Company's Act 1956 / Nationalised Bank constituted under the banking companies (acquisition and transfer of undertakings) Act constituted under the State Bank of India Act / subsidiary Banks Act, having its Registered / Head Office at -----, represented herein by its branch Manager / Authorised representative Sri.----- and Sri. ----- (hereinafter called the "Guarantor" which term shall mean and include its successors and assigns):

IN FAVOUR OF

BHARAT HEAVY ELECTRICALS LIMITED (Buyer's Name), a Company registered under the Company's Act 1956, having its registered office at BHEL House, Siri Fort, New Delhi-110 049 and its Electronics Division at Mysore Road, Bangalore-560 026 (hereinafter referred to as the "Company" which term shall include its successors and assigns):

WHEREAS the Company has placed an order on ----- (state the Name of the Company / Firm and its address) (hereinafter referred to as "Contractor" which term shall mean and include its liquidators, successors and assigns) for the supply of service under order / contract to be issued by the Company.

AND WHEREAS the Contractor has agreed to carry out the works as detailed and in accordance with the terms set out in the said order / contract.

AND WHEREAS the Contract inter alia provides that the Contractor shall furnish a Bank Guarantee in favour of the Company by a reputed Bank for a sum of Rs.----- (Rupees -----) towards Security Deposit for service rendered by him and for due and faithful performance of the contract in the manner and form specified therein.

AND WHEREAS the Contractor, M/s.----- is a customer of the 'Guarantor' and has approached the 'Guarantor' to furnish on their behalf an irrevocable guarantee for a sum of Rs. ----- (Rupees -----) in favour of the Company for a period of ----- year commencing from ----- to ----- as Security for the services to be issued by the company to the Contractor during the currency of this guarantee.

AND WHEREAS the Guarantor has agreed to furnish a guarantee for the said sum of Rs.----- (Rupees -----) for a period ----- year commencing from ----- to ----- in favour of the Company subject to the terms and conditions stated below:

NOW THIS DEED WITNESSES THAT IN pursuance of the above said agreement, the Guarantor hereby agrees and covenants with Company is as follows:

1. That during the period this contract of guarantee remains effectual, the guarantor shall be liable in respect of the amount due and owing to the Company in respect of the payments to the extent of Rs.----- (Rupees -----) against any loss or damage caused to or suffered by the Company by reasons of any breach of the terms of the said order / contract / agreement by the Contractor.
2. The Guarantor hereby undertakes to pay the amounts due and payable under this guarantee without any demur, merely on demand from the Company intimating that the amount claimed is due by way of loss or damage caused to or suffered or would be caused or suffered by the contractor of any terms contained in the said order / contract. Any such demand made on the Guarantor shall be conclusive as regards the amount due and payable by the Guarantor irrespective of the fact whether the Contractor admits or denies.
3. The Guarantor further agrees that the agreement herein contained shall remain in force and effect till all the supplies to be made / works to be performed / services to be rendered under the said order / contract / agreement are completed to the entire satisfaction of the company or till the company certified that the terms and conditions of the said order / Contract / agreement have been fully and properly carried out by the said contractor and accordingly discharges the guarantee. Unless a demand or claim under this guarantee is made on the guarantor in writing on or before ----- (date), the guarantor shall be discharged from all liability under this Guarantee thereafter.
4. The Guarantor further agrees with the company that the Company shall have the fullest liberty without the consent of the Guarantor and without effecting in any manner the obligations of the guarantor hereunder to vary any of the terms of the said order / contract / agreement or extend the time of performance by the said Contractor from time to time or refrain from exercising the power exercisable by the Company against the said Contractor or to forbear or omit to enforce any of the terms and conditions relating to the said order / contract / agreement, and the Guarantor not be relieved of its liability in whole or in part, by reason of any act, omission or forbearance on the part of the Company or by reasons of any such variation or extension being granted to the said Contractor or by reason of any

such matter or thing whatsoever which under the law relating to Sureties would but for this provision have effect of so relieving the Guarantor.

5. The Guarantor undertakes not to revoke this Guarantee during its currency except with the previous consent of the company in writing.
6. Notwithstanding anything herein above contained, the liability of the guarantor under this presence is restricted to Rs.----- (Rupees -----) the guarantee shall be in force till its expiry on ----- unless a demand is made on the Guarantor within SIX months from the date of expiry i.e., on -----(date), all the liability of the Guarantor under this guarantee shall stand fully discharged. The decision of claimant in regard to breach of contract is final and binding on the Bank.

IN WITNESS whereof, the Guarantor, acting through its authorised representative has executed this deed of guarantee on the day, month and year first above written.

Signature of authorised Bank Official
with Seal of the Bank

WITNESS:

1)

2)

Note: These instructions are for executing the bank guarantee.

1. BG / Any amendment to BG should be executed on Rs.100/- stamp paper or shall be executed on the non-judicial stamp papers of adequate value procured in the name of the bank in the state where the issuing bank is located meeting the criterion of the stamp act.
2. 6 (SIX) months claim period from the Date of validity should be given.

List of Member Banks (for issuance of BG)

1.	State Bank of India CAG Branch, 10 th Floor, Vijaya Building, Barakhamba Road, New Delhi – 110001.	8.	Deutsche Bank, Tolstoy marg, New Delhi – 110001.
2.	Canara Bank, 74 Janpath, New Delhi – 110001.	9.	Citi Bank N A Jeevan Vihar Building, Sansad Mrg, New Delhi – 110001.
3.	Punjab National Bank, 74, Janpath, New Delhi – 110001.	10.	Standard Chartered Bank, H2 Block, Connaught Place, New Delhi – 110001.
4.	State Bank of Hyderabad, Surya Kiran Building, K.G. Marg, New Delhi – 110001.	11.	ICICI Bank Ltd., ICICI Tower, Bisham Pitamah Marg, Pragati Vihar, New Delhi – 110001.
5.	State Bank of Mysore, Antriksh Bhawan, K.G. Marg, New Delhi – 110001.	12.	IDBI Bank Ltd, 19, K.G. Marg, Surya Kiran Building, New Delhi – 110001.
6.	State Bank of Mysore, Industrial Finance Branch, 18, Ramanashree Arcade, M.G. Road, Bangalore – 560001.	13.	HSBC Ltd, ECE House, 28, K.G. Marg, New Delhi – 110001.
7.	State Bank of Travancore, Travancore House, IF Branch, K.G. Marg, New Delhi – 110001.	14.	Bank of Baroda, Corporate Banking Branch, 11 th Floor, BOB Building, Sansad Marg, New Delhi – 110001.
BGs From any other branches of above mentioned banks are acceptable.			

**POWER OF ATTORNEY for SUBMISSION OF TENDER / SIGNING CONTRACT
AGREEMENT**

(To be typed on non-judicial Stamp Papers of appropriate value as applicable and Notarised)

KNOW ALL MEN BY THESE PRESENTS, that I/We do hereby make, nominate, constitute and appoint Mr. _____, whose signature given below herewith to be true and lawful Attorney of M/s..... hereinafter called 'Company', for submitting Tender/entering into Contract and inter alia, sign, execute all papers and to do necessary lawful acts on behalf of Company with M/s Bharat Heavy Electricals Ltd., Electronics Division, Mysore Road, Bangalore - 560026, in connection with...(works indicated in the tender document should also be mentioned) _____
_____ vide Tender Reference No. : _____, dated _____.

And the Company do hereby agree to ratify and confirm all acts, deeds, things or proceedings as may be lawfully done by the said attorney and by or on behalf of the company and in the name of the company, by virtue of the powers conferred herein and the same shall be binding on the company and shall have full force and effect.

IN WITNESS WHEREOF the common seal of the company has been hereunto affixed in the manner hereinafter appearing on the document.

Dated at _____, this _____ day of _____

Director/CMD/Partner/Proprietor

Signature of Mr. (Attorney)

Attested by: Director/CMD/Partner/Proprietor

Witness

- 1.
- 2.

Notary Public

FORMAT FOR CLAIM FOR REFUND OF SECURITY DEPOSIT

Ref:

Date:

1	Name of Contract	
2	W.O. No & Date	
3	Contract Agreement & Date	
4	Name of the work undertaken	
5	Date of Commencement of Work	
6	Date of Completion of work	
7	Period of maintenance	
8	Date of which Final bill was paid	
9	Last date of making good the defect during maintenance period	
10	Expenditure incurred by BHEL during the maintenance period, if any recoverable	
11	Date on which security Deposit falls due as per contract	
12	Amount deposited or recovered	
13.	Less Amount recoverable (with details)	
13.10	Amount Spent by BHEL on	
13.11	Payment made on behalf of contractor	
13.12	Court dues / penalties / compensation	
13.13	Other recoveries for services	
13.14	Security Deposit released with final bills	
14	Net Amount recommended for release (12-13)	

CERTIFICATE TO BE FURNISHED BY CONTRACTOR

I / We have no claim of demand outstanding against BHEL, Bangalore 560026 for the work done or materials supplied or on any account arising out or connected with the work order mentioned above and the payment of this bill shall in full & final settlement of all my/our claims and demands including the deposits in respect of the contract agreement referred to

Date:

Signature of Contractor

CERTIFICATE TO BE FURNISHED BY ENGINEER

Certified that

- The payment recommended for release is in order and that there are no demands other than those included in the claim outstanding from the contract.
- The maintenance period as per the contract agreement is over and the contractor has carried out the works required to be carried out by him during the period of maintenance to our satisfaction and all expenses incurred by the company on carrying out such works have been included for adjustment.
- All other objections raised so far have been settled.
- A note of refund of security deposit has been made in the measurement book and contract agreement / work order.

Date:

Signature of Engineer

FOR USE OF ACCOUNTS DEPARTMENT

Passed for Rs..... / (Rupees _____ only)

Accountant

Accounts officer

ACKNOWLEDGEMENT BY THE CONTRACTOR

Received Rs...../- (Rupees _____ only) in full and final settlement of my / our claim.

Date:

Signature of Contractor

FORMAT OF DECLARATION (ON BIDDER'S LETTER HEAD) TO BE GIVEN WITH FINAL BILL
(To be typed and submitted on the Letter Head of the Company/Firm of Bidder)

Ref:

Date:

To:

BHEL - Electronics Division,
PB.No.2606, Mysore Road
Bangalore – 560026

Dear Sir / Madam

Ref: Your W.O NO..... Date:

This is to certify that

1. We have made full & final payment (Retrenchment Compensation, One month notice / notice pay in lieu thereof, payment for unavailed portion of EL etc. as applicable) to all our workers and as on today nothing is pending / payable to any worker on account of wage & other benefits.
2. We have complied with relevant provisions of employees provident fund and misc. provisions Act 1952 and rules made there under and we have deposited up to date PF contribution under PF code No:.....
3. No one was injured / died due to accident during the period of contract in the execution of the work and hence no compensation payment is applicable.
4. No labour payment is pending with us.
5. We hereby certify that the work was completed in accordance with terms and conditions of the said work order / award letter and all the particulars as declared above are true to the best of my knowledge & belief.
6. That in case principal employer is held responsible / liable to pay any amount/penalty charge by an order of the court, arbitrator or authority due to acts or omissions of the contractor M/shereby undertakes to indemnify the principal employer and to deduct that amount from our bills payable by you in any other contract.
7. No other claims against this contract / work order will be made by us M/s..... on BHEL Bangalore.

Thanking You,

Yours Sincerely

(Signature, Date & Seal of
Authorized Representative of the Bidder)

EFT Details

Electronic Funds Transfer (EFT) Or Pay link Direct Credit Form	
Please Fill up the form in CAPITAL LETTERS only.	
TYPE OF REQUEST(Tick one): <input type="checkbox"/> CREATE <input type="checkbox"/> CHANGE	
BHEL Vendor / Supplier Particulars	
BHEL Vendor / Supplier Code:	
Company Name :	
Permanent Account Number (PAN):	
Address	
CITY	
STATE	
PINCODE	
Contact Person(s)	
Contact Person(s)	
Telephone No:	
Fax No:	
e-mail id:	
Vendor / Supplier BANK Particulars	
1 Bank Name	
2 Bank Address	
3 Bank Telephone No.	
4 Bank Account no.	
5 Account type (Savings / Credit)	
6 Bank MICR code (as in cheque)	
7 Bank Swift Code (For EFT only)	
8 Bank IFSC code (For RTGS / NEFT)	
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:	
Company Seal	Authorised Signatory:
	Designation:
	Telephone NO. with STD Code
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	
Bank Seal	Authorised Signatory:
	Designation:
	Telephone NO. with STD Code
Please return completed form along with a blank cancelled cheque or photocopy thereof to BHEL-EDN	

CONTRACT AGREEMENT

Agreement No. and Date _____
 Name of the Work _____
 Name of the Contractor with full address _____
 Value of work awarded _____
 Letter of Intent No. and Date _____
 Scheduled Commencement Date _____
 Scheduled Completion Date _____

THIS AGREEMENT MADE THIS _____ DAY OF _____ 2007 between BHARAT HEAVY ELECTRICALS LIMITED (A Government of India Enterprise) a Company incorporated under the Companies Act, 1956, having its Registered Office at BHEL House, Siri Fort New Delhi-110049 (herein after called BHEL) of the ONE PART.

AND

M/s. _____ (hereinafter called the 'Contractor') of the SECOND PART.

WHEREAS M/s _____ state that they have acquired and possess extensive experience in the field of _____

And Whereas in response to an Invitation to Tender No. _____ issued by BHEL for execution of _____ the contractor submitted their offer No. _____ dated _____

And whereas BHEL has accepted the offer of the Contractor on terms and conditions specified in the Letter of Intent No. _____ dated _____ read with the references cited therein.

THIS AGREEMENT WITNESSES AND it is hereby agreed by and between the parties as follows:

1. That the contractor shall execute the work of _____ and more particularly described in Tender Specification No. _____ including Drawings and Specifications (hereinafter called the said works) in accordance with and subject to terms and conditions contained in these presents, instructions to Bidders, General Conditions of Contract, Special Conditions, Annexures, Letter of Intent dated _____ and such other instructions, Drawings, Specifications given to him from time to time by BHEL.
2. The Contractor is required to furnish to BHEL Security deposit in the form of cash/ approved securities/ Bank Guarantee valid upto _____ for a sum of Rs. _____ towards satisfactory performance and completion of the Contract.
3. The Contractor has furnished a Bank Guarantee bearing no. _____ dated _____ for a sum of Rs. _____ executed by _____ in favour of BHEL towards Security Deposit valid up to _____

OR

The Contractor has furnished to BHEL an initial Security Deposit of Rs. _____ in the form of cash / approved Securities / B.G No. _____ dated _____ for Rs. _____ executed by _____ In favour of BHEL valid up to _____ and has agreed for recovery of the balance security deposit by BHEL @ 10% of the value of work done from each running bill till the entire Security Deposit is recovered.

OR

The contractor has furnished to BHEL an initial Security Deposit of Rs. _____ vide Bank draft No. _____ dated _____ and by adjusting EMD of Rs. _____ submitted vide Bank draft No. _____ dt. _____) and has agreed for recovery of balance Security Deposit by BHEL @ 10% of the value of work done from each running bill till the entire security deposit is recovered.

4. The Contractor hereby agrees to extend the validity of the Bank Guarantee for such further period or periods as may be required by BHEL and if the Contractor fails to obtain such extension(s) from the Bank, the Contractor, shall pay forthwith or accept recovery of Rs. _____ from the bills in one installment and the contractor further agrees that failure to extend the validity of the Bank Guarantee or failure to pay

the aforesaid amount in the manner specified above shall constitute breach of contract. In addition to above, BHEL shall be entitled to take such action as deemed fit and proper for recovering the said sum of Rs.-----.

OR

In case the contractor furnishes the bank guarantee at a later date the contractor hereby agrees to extend the validity of bank guarantee for such further period or periods as may be required by BHEL and if the contractor fails to obtain such extension(s) from the bank, the contractor shall pay forthwith or accept recovery of the amount of bank guarantee given in lieu of security deposit from the bills in one installment and the contractor further agrees that failure to extend the validity of bank guarantee or failure to pay the aforesaid amount in the manner specified above shall constitute breach of contract. In addition to above, BHEL shall be entitled to take such action as deemed fit and proper for recovering the said sum.

5. That in consideration of the payments to be made to the Contractor by BHEL in accordance with this Agreement the Contractor hereby covenants and undertakes with BHEL that they shall execute, construct, complete the works in conformity, in all respects, with the terms and conditions specified in this Agreement and the documents governing the same.
6. That the Contractor shall be deemed to have carefully examined this Agreement and the documents governing the same and also to have satisfied himself as to the nature and character of the Works to be executed by him.
7. That the Contractor shall carry out and complete the execution of the said works to the entire satisfaction of the Engineer or such other officer authorized by BHEL, within the agreed time schedule, the time of completion being the essence of the Contract.
8. That BHEL shall, after proper scrutiny of the bills submitted by the Contractor, pay to him during the progress of the said works such sum as determined by BHEL in accordance with this Agreement.
9. That this Agreement shall be deemed to have come into force from _____ the date on which the letter of intent has been issued to the Contractor.
10. That whenever under this contract or otherwise, any sum of money shall be recoverable from or payable by the Contractor, the same may be deducted in the manner as set out in the General Conditions of Contract or other conditions governing this Agreement.
11. That all charges on account of Octroi, Terminal and other taxes including sales tax or other duties on material obtained for execution of the said works shall be borne and paid by the Contractor.
12. That BHEL shall be entitled to deduct from the Contractor's running bills or otherwise Income Tax under Section 194 (C) of the Income Tax Act, 1961.
13. That BHEL shall be further entitled to recover from the running bills of the Contractor or otherwise such sum as may be determined by BHEL from time to time in respect of consumables supplied by BHEL, hire charges for tools and plants issued (Where applicable) and any other dues owed by the Contractor.
14. That it is hereby agreed by and between the parties that 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 and the liability of the Contractor with respect to compensation payable to BHEL or Contractor's obligations shall remain unaffected.
15. It is clearly understood by and between the parties that in the event of any conflict between the Letter of Intent and other documents governing this Agreement, the provisions in the Letter of Intent shall prevail.

16. The following documents

1. Invitation to Tender No _____ and the documents specified therein.
2. Contractor's Offer No _____ dated _____
3. _____
4. _____
5. _____
6. Letter of Intent No _____ dated _____.
7. _____

shall also form part of and govern this Agreement

IN WITNESS HEREOF, the parties hereto have respectively set their signatures in the presence of

WITNESS

(to be signed by a person holding a valid Power of Attorney)
(CONTRACTOR)

1.

2.

WITNESS

(For and on behalf of BHEL)

1.

2.

CHECK LIST TO BE SUBMITTED ALONG WITH EVERY RA BILL

NAME OF THE CONTRACTOR

RAB NO:

LOI NO & DATE

RAB DATE:

DESCRIPTION OF WORK

SL.NO	PARTICULARS	YES	NO	REMARKS
1	ALL T&PS AND OTHER INSTRUMENTS REQUIRED AS PER CONTRACT HAVE BEEN DEPLOYED AT SITE AND ARE AVAILABLE IN GOOD WORKING CONDITION & UTILISATION REPORT HAS BEEN SUBMITTED.			
2	LABOUR LICENSE FOR THE WORKMEN ENGAGED AND IS VALID UPTO			
3	WC POLICY FOR THE WORKMEN ENGAGED ARE AVAILABLE & VALID UPTO			
4	COPIES OF THE ABOVE HAVE BEEN SUBMITTED TO BHEL			
5	WORKERS WAGES FOR THE PREVIOUS MONTH HAVE BEEN DISBURSED AND PAID ACQUITTANCE ROLL SUBMITTED TO BHEL			
6	PF HAS BEEN DEDUCTED AS PER RULES AND PAID CHALLAN SUBMITTED TO BHEL			
7	PLEASE QUOTE YOUR PAN NO.			
8	PLEASE QUOTE YOUR SERVICE TAX REGN. NO.			
9	SERVICE TAX FOR THE PREVIOUS MONTH HAS BEEN REMITTED AND PROOF OF PAYMENT HAS BEEN ATTACHED WITH THE CURRENT BILL			
10	BANK GUARANTEE FOR SECURITY DEPOSIT/ADVANCE PAID ARE VALID UPTO			
11	PROOF OF SALES TAX REGISTRATION AND EXEMPTION ,IF ANY ,FOR NON DEDUCTION / SHORT DEDUCTION OF WCT HAS BEEN SUBMITTED TO BHEL			
12	PERIODICAL REPORTS AS PER CONTRACT HAS BEEN SUBMITTED			
13	"QUALITY ASSURANCE LOG SHEETS, PROTOCOLS & OTHER DOCUMENTS AS REQUIRED UNDER SECTION 8 OF THE CONTRACT HAS BEEN SUBMITTED AND NECESSARY APPROVAL OBTAINED.			
14	LOG SHEETS FOR EXTRA / ADDITIONAL WORK CARRIED OUT AS PER CONTRACT HAS BEEN SUBMITTED TO BHEL			

CONTRACTOR

BHEL

DATE:

PLACE:

RELEVANT IS – CODES FOR PERSONAL PROTECTION

Standard	Description
IS: 2925-1984	Industrial Safety Helmets
IS: 4770-1968	Rubber gloves for electrical purposes
IS: 6994, 1973 (Part-I)	Industrial Safety Gloves (Leather & Cotton Gloves)
IS: 1989-1986 (Part I & III)	Leather safety boots and shoes
IS: 3738-1975	Rubber knee boots
IS: 5557-1969	Industrial and Safety rubber knee boots
IS: 6519-1971	Code of practice for selections, care and repair of Safety footwear
IS: 11226-1985	Leather Safety footwear having direct moulding sole
IS: 5983-1978	Eye protectors
IS: 9167-1979	Ear protectors
IS: 3521-1983	Industrial Safety belts and harness

PART - II

PRICE BID

1. Rate to be quoted in Rupees. These Rates shall be entered in figures as well as in words. In case of difference in rates between words and figures THE LESSER OF THE TWO will be treated as valid rate.
2. Bidders should quote for all the items in Rate Schedule and the total amount will be evaluated.
3. The bidder should affix his signature in all the sheets of Rate Schedule.

SIGNATURE & SEAL OF BIDDER

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
1	A	DDCMIS PANELS are in single / two / three or five panels per suite formation. Work includes fixing canopy. Panel installation is at CER in Main plant, Remote I/O locations etc.						
2	A 1.1	Cubicle (Dimensions - L X B X H: 750X800X2415 mm) - Approximate weight = 400 Kg.	Nos.	15				
3	A 1.2	Cubicle (Dimensions - L X B X H: 1500X800X2415 mm) Approximate weight = 800 Kgs.	Nos.	25				
4	A 1.3	Cubicle (Dimensions - L X B X H: 2250X800X2415 mm) Approximate weight = 1200 Kgs.	Nos.	9				
5	A 1.4	Cubicle (Dimensions - L X B X H: 3750X800X2415 mm) Approximate weight = 2000 Kgs.	Nos.	1				
6		Electrical Control panel housing synchronizing hardware (Shifting of panels from stores, Erection of panel)						
7	A 2.1	CBW01 (Dimensions - L X B X H: 750X800X2415 mm) - Approximate weight= 400 Kg. - Metering panel	Nos.	1				
8	A 2.2	CWB02 (Dimensions - L X B X H: 750X800X2415 mm) - Approximate weight= 400 Kg. - Synchronising hardware panel	Nos.	1				
9	B	HMI ITEMS - Shifting of materials from stores to place to Erection and providing assistance for commissioning.						
10	B 1.1	Work Stations PC's with accessories keyboard and mouse etc.	Nos.	27				
11	B 1.2	A3/A4 Color Laser printer	Nos.	9				
12	B 1.3	Mini UPS for PC's at Main Plant	Nos.	11				
13		Large Video Screens (LVS)- Man power assistance for shifting of materials from stores to place of Erection & also during commissioning.						
14	B 2.1	Large Video Screens(LVS) with other related accessories	Nos.	6				
15		HMI Items for STATION LAN at Main Plant Control Room						

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
16	B 3.1	Server PCs for Station Wide LAN System with accessories like keyboard, mouse etc.	Nos.	7				
17		UNIT CONTROL DESK & RACKS - Shifting of material from stores and providing assistance to BHEL's Vendor.						
18	B 4.1	Arc shaped Unit Control Desk (7 X 1.2 sq.m area) at Main Control Room	Nos.	1				
19	B 4.2	Arc shaped Unit Control Desk (4 X 1.2 sq.m area) at DM Plant	Nos.	1				
20	B 4.3	Arc shaped Unit Control Desk (4 X 1.2 sq.m area) for Unit In-charge in Main control room	Nos.	1				
21	B 4.4	LVS PC rack - Dimension: L X BX H : (2600 X 750 X 1600)mm	Nos.	1				
22	B 4.5	Computer Table for Work Station (2100 X 928 mm) at Main Plant	Nos.	3				
23	B 4.6	Computer Table for Work Station (2100 X 928 mm) at Station LAN area	Nos.	3				
24	B 4.7	Computer Table for Work Station (2100 X 928 mm) at DM Plant	Nos.	1				
25	B 4.8	Printer Table (850 X 750 mm) at Main Plant	Nos.	2				
26	B 4.9	Printer Table (850 X 750 mm) at DM Plant	Nos.	1				
27	B 4.10	Computer Table	Nos.	15				
28	B 4.11	Operator Chairs	Nos.	39				
29	C	SLAVE CLOCK SYSTEM : Scope includes Erection of panel at CER-1 and installation of JB's and Display Units. (Associated Cabling covered under corresponding Clause in this BOQ) and providing man power assistance during commissioning is in Contractor's scope (Commissioning in vendor scope)						
30	C 1.1	Slave Clock panel - A Single cubicle of Dimension 800 mm X 800 mm X 2415 mm (WXDXH) and approx Wt.500 Kgs	Nos.	1				
31	C 1.2	Slave Clock display Units (Location: Control Room, Control Equipment room, HT Switchgear, TG 0 mtr, Other Locations) -	Nos.	11				
32	C 1.3	JB made of MS sheet, Dimension:105 mm(W) X 105 mm (H) X 40 mm (D).	Nos.	6				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
33	D	FLAME SCANNERS: Mounting of scanners at Wind box / Burner, racks provided as loose items and Laying of Cable from Scanner to Scanner Racks mounted at Control room-supervision & commissioning by BHEL						
34	D 1.1	Fireball Flame Scanner with Head Assembly, Dimension - Length 78" with Approximate Weight 6 Kgs	Nos.	20				
35	D 1.2	Flame scanner Amplifier Chassis - 19" Rack Assembly (Approximate Wt. 9 Kgs)	Nos.	5				
36	D 1.3	Tripple Shielded Cable - Size 1.3 Sq.mm	Mtr	6000				
37	D 1.4	6 Way FRP Miniature JBs	Nos.	20				
38	E	SADC system : Erection of power cylinders and SS/Cu tubing wherever necessary. Cu /SS tubes and necessary accessories like Nipples, Valves, Hose, Tee etc. will be supplied by BHEL						
39	E 1.1	SADC Pneumatic Power cylinder / actuator (3" X 5") with Positioners	Nos.	52				
40	E 1.2	Air Filter Regulators	Nos.	13				
41	E 1.3	Pressure Switches	Nos.	13				
42	E 1.4	E/P converters	Nos.	13				
43	E 1.5	Solenoid Valves	Nos.	16				
44	F	Acoustic Steam Leak Detection system (ASLD) : Mounting of panel at main plant Control room and Sensors at various locations in boiler as per design with associated JBs erection (Associated Cabling covered under corresponding Clause in this BOQ). - Supervision and Commissioning of system by BHEL						
45	F 1.1	Single Cubicle of size L X B X H : 800 X 800 X 2315 mm with an Approximate Wt. 300 Kgs	Nos.	1				
46	F 1.2	Sensor assembly - Approximate Wt. 22 Kg	Nos.	20				
47	F 1.3	48 Way FRP JBs	Nos.	8				
48	F 1.4	Field Amplifier Box - A special Type of 16 Way JB	Nos.	20				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
49	F 1.5	Solenoid Valves for Auto Purging	Nos.	20				
50	G	Electronic Water Level Indicator (12 port): Mounting of Pressure vessels, Ascetor Cabinet with Display Units. Laying of special type of Cable (PTFE) from Vessels to Ascetor Unit and Associated Power and Instrumentation Cable laying is covered under corresponding Clause in this BOQ. Assistance to M/s BHEL'S CUSTOMER for Tapping from drum to Vessels and associated piping with Isolation valves. Isolation valves, Gaskets and Glands, Pipes etc. will be supplied by BHEL. Supervision and Commissioning by BHEL.		1				
51	G 2.1	Pressure Vessel with Electrodes (12 Port) - Wt.125 Kgs	Nos.	2				
52	G 2.2	Pressure Vessel with Electrodes (8 Port) - Wt.145 Kgs	Nos.	2				
53	G 2.3	Ascetor Cabinet of Dimension: 600(H)X600(L)X350(W) mm and Approximate Wt.140 Kgs.	Nos.	4				
54	G 2.4	10 Pair X 0.6 Sq.mm PTFE Probe Cable	Mtr.	90				
55	G 2.5	Display Unit (12 PORT) of Dimension 194(H)X99(L)X81(W) mm and Wt. 2 Kg (Approx.) at Operating Floor and UCR	Nos.	4				
56	H	COAL BUNKER LEVEL MONITORING SYSTEM : Mounting of sensor with mounting pads, alignment device and JB. Laying of cables between sensor, JB and panel. Associated cable laying is covered under corresponding Clause in this BOQ.Tagging to be provided as per BHEL/BHEL'S CUSTOMER specifications. Bunker level monitoring panel - A single cubicle having dimensions 1000 mm X 400 mm X 1400 mm (W X D X H) with an Approx. Wt 500 Kg., Ultrasonic types Level sensor with counter mounting pads 6 Nos., Junction Boxes made from thermoplast material of Size LX B X D: 119 x 139 X 70 mm Qty. 6 Nos.	Lump-sum	1				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
57	I	FURNACE FLAME CAMERA SYSTEM: Erection of panel, assistance for camera installation with proper welding, piping works for air cooler system and during commissioning. All the Associated cable Laying (Power and Signal) and Commissioning of the System in Vendor Scope.		1				
58	I 1.1	Flame Camera system Panel to be erected at CER / CCR Plus a WALL MOUNT Dimension: (WXDXH) 800 x 800 x 2415 mm Approximate Wt. 400 Kg	Nos.	1				
59	I 1.2	Cameras with JB's	Nos.	4				
60	J	FIELD INSTRUMENTS						
61	J 1.1	Positive Displacement Meter for HFO flow measurements in main line and return line with Associated Strainer, Matting Flanges, Pulse Amplifier for F to I Converter with Flame Proof Housing.	Set	2				
62	J 1.2	Pneumatic corner valves	Nos.	36				
63	J 1.3	Double coil solenoid valves (24 VDC) for Oil Gun Advance / Retract	Nos.	12				
64	J 1.4	Double coil solenoids (24 VDC) for Seal air fan discharge dampers	Nos.	2				
65	J 1.5	Single coil solenoid valve (24 VDC) for Emergency suction damper	Nos.	1				
66	J 1.6	Double Coil solenoid valve (24 VDC) for Scanner air fan discharge dampers	Nos.	2				
67	J 1.7	Double Coil Solenoid valve (24 VDC) for Ignitor Air Fan Discharge damper	Nos.	2				
68	J 1.8	Double Coil Solenoid valve (24 VDC) for Hot Air gate	Nos.	6				
69	J 1.9	Single coil solenoid Valve (24 VDC) for LOTV	Nos.	1				
70	J 1.10	Dual coil solenoid Valve (24 VDC) for Pulvrizer discharge damper	Nos.	6				
71	J 1.11	HOTV Single coil solenoid Valve (24 VDC) & HORV dual coil solenoid Valve (24 VDC)	Nos.	2				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
72	J 1.12	Impact head type flow element for Cooling Water Flow Measurement - : Scope includes complete installation of the unit with accessories.	Nos.	2				
73	J 1.13	Low Temperature Oxygen Analyser: Mounting of Sensor/Probe with SS tubing between sensor and calibration unit, accessories and mounting of analyser and laying of cable between probe, analyser and calibration unit. Installation also includes JB erection (Structural steel for fabrication of JB mounting structure will be supplied by BHEL)	Nos.	2				
74	J 1.14	Electro Pnuematic Smart positioners / position feedback transmitters : Manpower assistance to be provided for during installation and commissioning to BHEL Vendor. Associated Copper Tubing is covered under corresponding Clause in this BOQ and Cabling is covered under corresponding Clause in this BOQ	Nos.	34				
75	K	Stator Water Conductivity Analyser : Mounting of Assembled unit on 2"/ 3" NB pipe with Sensor. Pipe, U-Clamps, Washers, nuts etc. will be supplied by BHEL. Associated Cabling is covered under corresponding Clause in this BOQ. Commissioning of System by BHEL / Vendor.						
76	K 1.1	Conductivity Analyser Unit	Nos.	2				
77	L	TURBO SUPERVISORY SYSTEM : Erection of panel and mounting of sensors at TG as per erection guidelines & Quality plan of VENDOR and cables laying through conduits, JB mounting and laying of signal cables to control room						
78	L 1.1	Turbo Supervisory System with Marshalling panel - A suite of two panels (Dim 1600 mm X 800 mm X 2415 mm) Approx. Wt - 600 Kg	Nos.	1				
79	L 1.2	Sensor with counter mounting pads for Differential expansion (HPT,IPT & LPT), Overall expansion (HP& IP Casing), Phase Mark, Axial Shift, relative vibration, absolute bearing vibration and speed for Main turbine and MDBFP	Nos.	38				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
80	L 1.3	Junction Boxes - FRP Body 5 Way, Dimension:139(L) X 119(H) X 70(D) mm	Nos.	4				
81	L 1.4	Junction Boxes - FRP Body 8 way, Dimension: 210(L) X 310(H) X 116(D) mm	Nos.	6				
82	L 1.5	Junction Boxes - FRP Body, Dimension: 160(L) X 200(H) X 98(D) mm	Nos.	3				
83	L 1.6	Erection of Toothed Wheel for Speed sensing	Nos.	1				
84	M	VIBRATION MONITORING SYSTEM: Providing assistance in Mounting of sensors and cable laying through SS conduit and assistance to vendor during commissioning						
85	M 1.1	Vibration Monitoring System - For IDs,FDs,PAs,BFPs,CEPs: Panel to be Erected at CER (Dim 1600mm W x 800mm D x 2415mm H) Approx. wt = 600 Kg	Nos.	1				
86	M 1.2	Sensor mounting pad (Dimension: 40 x 40 x 40 mm) for each pickup	Nos.	34				
87	M 1.3	Key phasor mounting bracket	Nos.	11				
88	M 1.4	8 WAY FRP Body JB Dimension : L X B X H -139 X 119 X 70 mm	Nos.	45				
89	M 2.1	Vibration Monitoring System -For Cooling Tower (CT) Fans A single cubicle to be erected at remote CW Control Room (Dim 800mm W x 800mm D x 2415mm H) Approx. wt. = 300 Kg.	Nos.	1				
90	M 2.2	Sensor mounting pad (40 x 40 x 40 mm) for each pickup	Nos.	16				
91	M 2.3	6 WAY FRP Body JB Dimension : L X B X H -139 X 119 X 70 mm	Nos.	16				
92	M 2.4	Temperature Elements (TE) - The work involves mounting of RTDs in cooling tower fans						
93	M 2.5	RTD for Gear Box temperature monitoring system for CT fans	Nos.	16				
94		ELECTRICAL POWER SUPPLY SYSTEM						

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
95	N	24V DC Power system along with DCDB for offsite and Remote I/O system with Batteries : All interconnections, arranging load testing, Commissioning assistance to vendor for battery charging / discharging and load testing.						
96	N 1.1	24 V DC 500 AMPS CHARGER FOR SG/TG PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 800 KGS AND DIMENSION 2000(H) X 1600 (W) X 800 (D) mm	Set	2				
97	N 1.2	BATTERY FOR 24 V DC SG/TG CHARGER COMPRISING 2 X 19 CELLS (KPH 520 P) OF 520 AH APPROXIMATE WEIGHT OF EACH CELL 44.8 KG & DIMENSION OF EACH CELL 345(L) X 195(W) X 405(H) mm.	Set	2				
98	N 2.1	24 V DC 250 AMPS CHARGER FOR BOP PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 2000(H) X 1600 (W) X 800 (D) mm AND COMMON DCDB PANEL - 1 PANEL APPROX WT. 400KG AND DIMENSION 1500(H) X 800 (W) X 800 (D) mm.	Set	2				
99	N 2.2	BATTERY FOR 24 V DC BOP CHARGER COMPRISING 1 X 19 CELLS (KPH 520 P) OF 520 AH APPROXIMATE WEIGHT OF EACH CELL 44.8 KG & DIMENSION OF EACH CELL 345(L) X 195(W) X 405(H) mm.	Set	2				
100	N 3.1	24 V DC 100 AMPS CHARGER FOR FOPH PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2				
101	N 3.2	BATTERY FOR 24 V DC FOPH CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2				
102	N 4.1	24 V DC 100 AMPS CHARGER FOR ASH SLURRY PLANT PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
103	N 4.2	BATTERY FOR 24 V DC ASH SLURRY CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2				
104	N 5.1	24 V DC 100 AMPS CHARGER FOR RW + CWPH PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2				
105	N 5.2	BATTERY FOR 24 V DC RW + CWPH CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2				
106	N 6.1	24 V DC 100 AMPS CHARGER FOR CT STAGE-I PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2				
107	N 6.2	BATTERY FOR 24 V DC CT STAGE-I CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2				
108	N 7.1	24 V DC 100 AMPS CHARGER FOR CT STAGE-II PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 600 KGS AND DIMENSION 1500(H) X 1400 (W) X 700 (D) mm.	Set	2				
109	N 7.2	BATTERY FOR 24 V DC CT STAGE-II CHARGER COMPRISING 1 X 19 CELLS (KPH 170 P) OF 170 AH APPROXIMATE WEIGHT OF EACH CELL 14.1 KG & DIMENSION OF EACH CELL 128(L) X 165(W) X 361(H) mm.	Set	2				
110	N 8.1	24 V DC 150 AMPS CHARGER FOR DM PLANT PACKAGE COMPRISING CHARGER & DCDB PANEL - 2 PANELS APPROX 650 KGS AND DIMENSION 2000(H) X 1600 (W) X 800 (D) mm.	Set	2				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
111	N 8.2	BATTERY FOR 24 V DC DM PLANT CHARGER COMPRISING 1 X 19 CELLS (KPH 315 P) OF 315 AH APPROXIMATE WEIGHT OF EACH CELL 24 KG & DIMENSION OF EACH CELL 176(L) X 195(W) X 405 (H) mm.	Set	2				
112	O	UPS:Panel Erection, all interconnections within UPS panels, ACDB, Battery, etc. Acid / alkali filling for batteries. Providing Commissioning assistance to vendor.						
113	O 1.1	UN INTERRUPTED POWER SUPPLY SYSTEM RATING 70 KVA (UPS) COMPRISING 07 PANELS.a) UPS 1 & 2 (WT.OF EACH PANEL 1200KG) in a Suite of two, Approximate Dimensions 2800(W) X 900(D) X 2235(H) mm +b) SCVS (WT.OF PANEL 800 KG) Approximate Dimension 900(W)X 900(D) X 2235 (H) mm + c) ACDB 1 & 2 (WT.OF EACH PANEL 800 KG) Approximate Dimension 1200(W) X 800(D) X 2235(H) mm.d) STATIC SWITCH PANEL (WT.OF PANEL 250 KG) Approximate Dimension 700(W) X 800(D) X 2235(H) mm.e) BHMS-Battery Health Monitoring System (WT. OF PANEL 200 KG) Approximate Dimension 800(W) X 300(D) X 1500(H) mmf) MAINTENANCE BY PASS PANEL (WT. OF PANEL 250 KG) Approximate Dimension 440(W) X 800(D) X 2235(H) mm.WITH ALL INTER CONNECTION BETWEEN BATTERY, UPS & BETWEEN UPS PANELS.	Set	1				
114	O 1.2	BATTERY BANK SYSTEM FOR ABOVE UPS COMPRISING APPROXIMATE 291 CELLS OF 330AH (KBH330P) WITH MS STAND. EACH CELL CELL DIMENSION APPROX 268 MM (L)X 195 MM (W)X 349 MM (H) APPROX WT. PER CELL 27 KG	Set	1				
115		PROCESS CONNECTION AND PIPING						

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
116	P	Local Instrument Enclosure / Racks (LIE/LIR): Installation at various locations /elevations in Boiler/TG as per drawing / instructions of BHEL Engineer. DIMENSIONS in WXDXH. Installation work includes fabrication of base frame using ISMC/ISA and welding on to the boiler structure(Supply of Angle/Channel in BHEL Scope).						
117	P 1.1	Local Instrument Enclosure -TYPE A -1250mm X 800mm X 2200mm WEIGHT 670 Kgs	Nos.	20				
118	P 1.2	Local Instrument Enclosure -TYPE B - 930mm X 800mm X 2200mm WEIGHT 550 Kgs	Nos.	36				
119	P 1.3	Local Instrument Rack -TYPE A -1650mm X 800mm X 2200mm WEIGHT 650 Kgs	Nos.	16				
120	P 1.4	Local Instrument Rack -TYPE B -1650mm X 800mm X 2200mm WEIGHT 520 Kgs	Nos.	25				
121	Q	IMPULSE PIPES: Identification, marking, stacking, cleaning, shifting to erection location, Erection, socket welding, Hydraulic testing, leak checking, etc primer & final painting (including supply of paints as per colour code of customer). All consumables like welding electrodes, testing materials, tags etc needed for the work to be supplied by vendor within the quoted price. Installation of all impulse line fittings including CONDENSATE POTS are considered as part of impulse line work. Welding allowed only by qualified welders accepted by BHEL/Customer and strictly as per approved welding procedure of BHEL/Customer. Only BHEL / BHEL'S CUSTOMER approved welding electrodes to be used. Installation work also includes fabrication of supports using ISMC/ISA and welding (Supply of Angle/Channel etc., in BHEL Scope).						
125	Q 1.1	A106 Gr C 1/2" NB SCH 80	Mtr	2325				

RATE SCHEDULE

Sl.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
122	Q 1.2	A106 Gr C 1/2" NB SCH 160	Mtr	300				
123	Q 1.3	A106 Gr C 3/4" NB SCH 80	Mtr	825				
124	Q 1.4	ASTM A106 Gr C 1" NB SCH 80	Mtr	38				
126	Q 1.5	A335 P22 1/2" NB XXS	Mtr	307				
127	Q 1.6	A335 P22 3/4" NB 80 SCH	Mtr	307				
128	Q 2.1	COPPER TUBING, SIZE: 1 / 4 " DIA.- Related brass fitting will be supplied by BHEL	Mtr	900				
129	Q 2.2	GI Pipe 1 / 2 "	Mtr	3000				
130	R	CABLES: Meggering, laying of cables on cable trays, through Conduits, Flexibles, dressing, tagging, gland plate drilling, glanding, termination etc. All consumables like lugs, cable tags, Nylon ties, sleeves (SLEEVES OF REQUIRED COLOR & SIZE), Ferruling (with ferrule printing m/c) etc. to be provided by Vendor within the rates quoted. ONLY CABLE GLANDS will be provided by BHEL as free issue. Shield wire to be sleeved and terminated at panel end. Tagging to be provided as per BHEL / BHEL'S CUSTOMER specifications. Preparation of Protocols for every RA Bill and reconciliation of cables to be made by the Contractor.						
131		INSTRUMENTATION CABLES						
132	R 1.1	F TYPE 2 PAIR 0.5 Sq.mm cable	Mtr	1400				
133	R 1.2	F TYPE 4 PAIR 0.5 Sq.mm cable	Mtr	16600				
134	R 1.3	F TYPE 8 PAIR 0.5 Sq.mm cable	Mtr	4800				
135	R 1.4	F TYPE 12 PAIR 0.5 Sq.mm cable	Mtr	4320				
136	R 1.5	F TYPE 24 PAIR 0.5 Sq.mm cable	Mtr	2160				
137	R 1.6	G TYPE 2 PAIR 0.5 Sq.mm cable	Mtr	5400				
138	R 1.7	G TYPE 4 PAIR 0.5 Sq.mm cable	Mtr	18000				
139	R 1.8	G TYPE 8 PAIR 0.5 Sq.mm cable	Mtr	10800				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
140	R 1.9	G TYPE 12 PAIR 0.5 Sq.mm cable	Mtr	3600				
141	R 1.10	G TYPE 24 PAIR 0.5 Sq.mm cable	Mtr	2160				
142		POWER / CONTROL CABLES						
143	R 2.1	1C X 630 sq.mm Aluminium, XLPE	Mtr	480				
144	R 2.2	1C X 35 sq.mm, Aluminium, PVC	Mtr	840				
145	R 2.3	1C X 120 sq.mm, Aluminium, PVC	Mtr	2700				
146	R 2.4	2C X 6 sq.mm, Copper, PVC	Mtr	1020				
147	R 2.5	2C X 2.5 sq.mm, Copper, PVC	Mtr	1020				
148	R 2.6	2C X 70 sq.mm, Copper, PVC	Mtr	900				
149	R 2.7	5C X 1.5 sq.mm	Mtr	4200				
150	R 2.8	3C X 1.5 sq.mm	Mtr	5400				
151	R 2.9	2C X 1.5 sq.mm	Mtr	5400				
152	R 2.10	2C X 2.5 sq.mm UNARMoured	Mtr	1200				
153	R 2.11	3C X 2.5 sq.mm UNARMoured	Mtr	1200				
154	R 2.12	5C X 2.5 sq.mm UNARMoured	Mtr	720				
155		OPTICAL FIBER CABLE - Optic fiber cables have to be laid on Cable trays, Conduits.						
156	R 3.1	OFC CABLE 4 CORE ARMoured	Mtr	3000				
157	R 3.2	OFC CABLE 8 CORE ARMoured	Mtr	9000				
158	R 3.3	OFC CABLE 12 CORE ARMoured	Mtr	1500				
159		NETWORK CABLE: Laying, dressing using ties and crimping on both ends						
160	R 4.1	UTP CAT 5e CABLE (21 BUNDLES EACH BUNDLE OF 305 MTR.)	Mtr	6405				
161	S	G.I. PERFORATED CABLE TRAYS: Installation work includes supports using ISMC / ISA and welding on to structure/fixing with fasteners (Supply of Angle / Channel in BHEL Scope). Fasteners in bidder's scope.						
162	S 1.1	CABLE TRAY OF Size: W X H X T - 600 X 100 X 2 mm	Mtr	1167				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
163	S 1.2	CABLE TRAY OF Size: W X H X T - 300 X 50 X 2 mm	Mtr	2100				
164	S 1.3	CABLE TRAY OF Size: W X H X T - 150 X 50 X 2 mm	Mtr	1400				
165	S 1.4	CABLE TRAY OF Size: W X H X T - 100 X 50 X 2 mm	Mtr	787				
166	S 1.5	CABLE TRAY OF Size: W X H X T - 50 X 25 X 2 mm	Mtr	2450				
167	T	CONDUITS: Installation in trenches, cable trays, along the walls, dressing using saddles, Ties, tag plates etc Fittings like bends, inspection bends etc will be supplied by BHEL. All consumables like saddles, mounting hardware, jumpers etc. for conduit / flexibles to be arranged by contractor within the quoted rates.						
168	T 1.1	Rigid Conduit 50mm dia. (2")	Mtr	1000				
169	T 1.2	Flexible Conduit 25 mm dia. (1")	Mtr	1000				
170	T 1.3	HDPE conduit 50mm dia. (2")	Mtr	3333				
171	U	ERECTION OF JUNCTION BOXES (FRP Body): Installation work includes fabrication of mounting frame using ISMC /ISA and welding on to structure / fixing with fasteners (Supply of Angle / Channel in BHEL Scope). Anchor fasteners in bidder's scope.						
172	U 1.1	12 WAYS	Nos.	26				
173	U 1.2	24 WAYS	Nos.	66				
174	U 1.3	36 WAYS	Nos.	3				
175	U 1.4	48 WAYS	Nos.	20				
176	U 1.5	72 WAYS	Nos.	63				
177		TT JUNCTION BOXES for Temperature Transmitters : Installation work includes fabrication of mounting frame using ISMC/ISA and welding on to structure/fixing with fasteners (Supply of Angle/Channel in BHEL Scope). Anchor fasteners in bidder's scope.						
178	U 2.1	6 WAYS RTD TT	Nos.	109				
179	U 2.2	12 WAYS RTD TT	Nos.	51				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
180	V	TRANSMITTERS: Wherever standalone transmitters mounting is envisaged, fabrication of support in bidder's scope and required structural steel will be supplied by BHEL.						
181	V 1.1	Electronic Pressure Transmitters	Nos.	184				
182	V 1.2	Differential Pressure Transmitters	Nos.	76				
183	V 1.3	Guided Wave Radar type transmitters	Nos.	18				
184	V 1.4	Single Input DIN rail mounted Temperature Transmitters	Nos.	728				
185	V 1.5	Dual Input temperature transmitters with indicators	Nos.	50				
186		TRANSDUCERS : Mounting of loose Transducers (DIN rail / base plate) inside panels at main plant / remote I/O's						
187	V 2.1	Current Transducers	Nos.	121				
188	V 2.2	Voltage Transducers	Nos.	38				
189	V 2.3	PF Transducers	Nos.	1				
190	V 2.4	Frequency Transducers	Nos.	3				
191	V 2.5	Power Transducers	Nos.	7				
192	V 2.6	Temperature transducers	Nos.	8				
193	V 2.7	Tap position Transducers	Nos.	2				
194	W	HART MANAGEMENT SYSTEM: Job involved Panel erection and assistance to Vendor during Commissioning. Associated cabling is covered under corresponding Clause in this BOQ.						
195	W 1.1	System Comprising of HART Management Panel - 01 No. Single Cubicle., Approx Wt. 300 Kgs and Dimensions 2415(H) X 800(W) X 800(D) mm.	Nos.	1				
196	Y	DISMANTLING WORK:Sub-contractor to hand over the below dismantled equipment to BHEL'S CUSTOMER in " as it is" condition after cleaning at the location identified by BHEL/BHEL'S CUSTOMER, within the plant premises.						
197	Y 1.1	Existing / Old Panels	Nos.	82				
198	Y 1.2	Existing / Old cables, seggregating and shifting	Mtr	120000				

RATE SCHEDULE

SI.No	CLAUSE REF.	ITEM DESCRIPTION	Unit of Measurement	Total Qty.	Unit Rate		Amount	
					Figures in Rs.	Words	Figures in Rs.	Words
199	Y 1.3	Existing / Old field instruments, Junction Boxes as identified by BHEL/Customer.	Nos.	700				
200	Y 1.4	Existing / Old Cable Trays as identified by BHEL/Customer.	Mtr	5000				
Total Estimate is Rs.								
Service Tax @ 12.36% (present rate) on total estimate in Rs.								
Total Estimate including Service Tax is Rs.								