

TENDER SPECIFICATION

BHEL: PSSR: SCT: 1337

FOR

Handling at Site Stores / Storage yard,
Transportation to Site of Work, Erection,
Testing and Commissioning of Rotating
Equipments and its Auxiliaries including
Supply & Application of Final Painting for
Unit – 5

of

210 MW set, Stage III,

at

Rayalaseema Thermal Power Project
(Muddanur) V.V.Reddy Nagar,
Kalamalla Post, Cuddapah Dt, AP

PART – I TECHNICAL BID

BOOK NO:



BHARAT HEAVY ELECTRICALS LIMITED

(A Government of India Undertaking)

Power Sector – Southern Region

690, Anna Salai, Nandanam, Chennai – 600 035.

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

Tender Specification No. BHEL: PSSR: SCT: 1337

Messrs

Date:

Dear Sir,

Sub: Handling at Site Stores / Storage yard, Transportation to Site of Work, Erection, Testing and Commissioning of Rotating Equipments and its Auxiliaries including Supply & Application of Final Painting for Unit – 5 of 210 MW set, Stage III, RTPP Muddanur.

Please find enclosed one set of non-transferable tender documents along with general conditions of contract Booklet for the above work.

You are requested to go through the tender documents, GCC Booklet and drawings and offer your most competitive rate and submit the tender documents duly filled in as per procedure indicated in the tender specification along with requisite EMD of **Rs.1,50,000/- (Rupees one lakh fifty thousand only)** in the form Demand Draft drawn in favour of M/s.Bharat Heavy Electrical Limited Chennai – 35. Bids with Deviations from the tender conditions will be rejected.

A SEPARATE LETTER SHALL BE FURNISHED INDICATING THAT THERE ARE NO DEVIATIONS FROM THE TENDER CONDITIONS (As in Page 8)

Bids with Deviations from the tender conditions will be rejected.

The completed quotations shall reach the office of the under signed on or before **01.04.2009 at 15.00 Hrs.**

The Technical bids will be opened on the same day at **15.30 hrs.**

We shall separately intimate the date for opening the price bids only to those parties who are technically qualified.

You are requested to depute your authorized representative at the time of opening.

ANY REVISION OF RATES / PRICES WHATSOEVER AFTER THE TIME AND DATE MENTIONED IN TENDER SPECIFICATION FOR SUBMISSION OF COMPLETED QUOTATIONS SHALL NOT BE ENTERTAINED UNLESS CALLED FOR SPECIFICALLY BY BHEL.

Kindly acknowledge the receipt of the tender documents and confirm your participation.

Kindly note that BHEL reserves the right to reject any or all tenders without assigning any reason.

Thanking you,

Yours faithfully,
For and on behalf of
BHARAT HEAVY ELECTRICALS LIMITED

ADDITIONAL GENERAL MANAGER / CONTRACTS

Place : Chennai -35

Encl: One set of Tender documents along with GCC Booklet.

- This Tender document is not transferable

BHARAT HEAVY ELECTRICALS LIMITED
(A government of India undertaking)
Power Sector : Southern Region
690, Anna Salai, Nandanam, Chennai – 600 035.

SPECIAL INSTRUCTIONS TO BIDDERS

The Bidder must submit their bids as requested in a sealed cover prominently super scribing the Tender Specification number, due date and time of submission as mentioned in the Tender Notice.

The following information shall be furnished by the Bidder along with their offer (Technical Bid cover)

01. Details of previous experience during the last seven years indicating contract value, duration, completion period and present engagement as per G.C.C.
02. Organization structure of the Company as per GCC.
03. Financial status of the firm enclosing balance sheet and profit and loss account for the past 3 years and certificate from the Company's Banker as per G.C.C
04. Turnover of the Company in last 3 financial years
05. Latest Income Tax clearance certificate.
06. BIO DATA of key personnel presently in the Rolls of the company and proposed site organization for carrying out the work including deployment of Engineers and Supervisors.
07. Declaration sheets as per Appendix of Tender Specification.
08. Checklist and Schedule of General particulars as per Appendix in GCC.
09. T & P owned/deployment details as per G.C.C.
10. Technical manpower deployment details as per G.C.C
11. Other relevant details as per GCC and checklist.
12. These terms and conditions will be read and construed along with General Conditions of contract and in case of any conflict or inconsistency between the General conditions and the Terms and conditions of the tender specification, the provisions contained in the Terms and conditions (NIT, Rate Schedule, Common conditions, Special Conditions including Appendices) shall prevail.
13. THE BIDDERS ARE REQUESTED TO FURNISH THE DOCUMENTS LIKE COPIES OF LOI'S, WORK ORDER'S ETC PERTAINING TO THE EXPERIENCE INDICATED IN QUALIFYING REQUIREMENTS, AS GIVEN BELOW.

14. **QUALIFICATION REQUIREMENT**

- a. The bidders should have completed erection and commissioning of Rotating Machines with associated auxiliaries in a power plant of minimum one unit of 60 MW or above capacity in last seven years.
- b. The bidders should have a minimum average financial turn over of **Rs 30.00 Lakhs** in last three financial years ending on 31st March 2008.

The bidder should have earned profit in any one of the last three financial years ending on 31.03.2008 and should have positive net worth as on 31.03.2008.

Bidder should submit audited balance sheet and profit & loss account of the company for last three years ending on 31.03.2008 in support of above requirement.

- c. Notwithstanding the above, BHEL reserves the right to reject any or all the Tenders for reasons whatsoever beyond our control and the decision of BHEL is final.
- d. LD / Penalty shall be leviable as per the applicable clauses of GCC.

15. TENDERERS HAVE TO FURNISH A DECLARATION SHEET INDICATING THAT THERE IS NO DEVIATION IN TENDER DOCUMENTS (AS IN PAGE 8) TENDERERS MAY FURTHER NOTE THAT THIS DECLARATION IS A PREREQUISITE FOR BHEL TO CONSIDER THEIR BIDS. BIDS SUBMITTED WITHOUT "NO DEVIATION DECLARATION" WILL BE REJECTED BY BHEL.

16. SAFETY PLAN

Bidder may further note that the submission of safety plan is a prerequisite for BHEL to consider their bids.

BHARAT HEAVY ELECTRICALS LIMITED
(A government of India undertaking)
Power Sector: Southern Region
690, Anna Salai, Nandanam, Chennai – 600 035.

PROCEDURE FOR SUBMISSION OF SEALED BIDS

The Tenderers must submit their bids as required in two parts in separate sealed covers prominently super scribed as Part I "Technical Bid" and Part II "Price Bid" and also indicating on each of the covers the tender specification number and due date and time as mentioned in the Tender Notice.

Part I (Technical Bid) Cover I

Excepting Rate Schedule, all other schedules, data sheets and details called for in the specification shall be enclosed in part I Technical Bid only.

Part II (Price Bid) Cover II

All indications of price shall be given in this part II Price Bid.

Tenderers are requested to quote their rates, only in the price bid (part II) provided by BHEL. Quoting of rates in any other form / formats will not be entertained.

These two separate cover I & II (Part I and Part II) shall together be enclosed in a third envelope (Cover III) along with requisite EMD as indicated and this sealed cover shall be super scribed and submitted to Additional General Manager/Contracts at the above mentioned address before the due date as indicated. The Tenderers will be intimated separately in case any clarifications are required.

NOTE:

Tenderers are issued with 2 Nos. of Technical Bids, 2 Nos. of Price Bids and 2 Nos. of GCC booklet., out of which one set of each document shall be retained by them for their reference. Balance one set shall be submitted along with their offer as per procedure indicated above.

EMD amount for this Tender is **Rs1,50,000/- (Rupees One Lakh fifty thousand only)**. This EMD amount shall be submitted in the form of either pay order or demand draft only drawn in favour of M/s. Bharat Heavy Electricals Limited, Chennai – 35.

EMD amount in the form of Bank Guarantee / fixed deposit receipt or in any other form will not be accepted.

ANY REVISION OF RATES / PRICES WHATSOEVER AFTER THE TIME AND DATE MENTIONED IN TENDER SPECIFICATION FOR SUBMISSION OF COMPLETED QUOTATIONS SHALL NOT BE ENTERTAINED UNLESS CALLED FOR SPECIFICALLY BY BHEL.

Additional General Manager/Contracts

BHARAT HEAVY ELECTRICALS LIMITED
(A Government of India Undertaking)
Power Sector, Southern Region
690, Anna Salai, Nandanam, Chennai – 35

TENDER NOTICE

Sealed Tenders are invited from reputed contractors with sufficient previous experience in the under mentioned similar nature of work:

Tender Specification No. BHEL: PSSR: SCT: 1337

Description	EMD
Handling at Site Stores / Storage yard, Transportation to Site of Work, Erection, Testing and Commissioning of Rotating Equipments with auxiliaries including Supply & Application of Final Painting for Unit – 5 of 210 MW set, Stage III, at Rayalaseema Thermal Power Project (Muddanur) V.V.Reddy Nagar, Kalamalla Post, Cuddapah District, Andhra Pradesh.	Rs.1,50,000/- (Rs. One lakh fifty thousand only)

Cost of Tender Documents : (Including all Taxes)	Rs.1040/-
Sale Starts on :	10.03.2009
Sale closes on :	31.03.2009
Due date and Time for Submission :	01.04.2009 15.00 Hrs.
Date and time for opening of Technical Bids :	01.04.2009 15.30 Hrs.

Qualification Requirements

- a) The bidders should have completed erection and commissioning of Rotating Machines with its associated auxiliaries in a power plant of minimum one unit of 60 MW or above capacity in last seven years.

- b) The bidders should have a minimum average financial turn over of **Rs 30.00 Lakhs** in last three financial years ending on 31st March 2008.

The bidder should have earned profit in any one of the last three financial years ending on 31.03.2008 and should have positive net worth as on 31.03.2008.

Bidder should submit audited balance sheet and profit & loss account of the company for last three years ending on 31.03.2008 in support of above requirement.

- c) Notwithstanding the above, BHEL reserves the right to reject any or all the Tenders for reasons whatsoever beyond our control and the decision of BHEL is final.
- d) LD / Penalty shall be leviable as per the applicable clauses of GCC

Interested parties can get the Tender documents from the office of the Additional General Manager / Contracts on all working days (Between 10.00 AM to 4.30 PM) by remitting the cost of tender documents either by Cash (Cash remittance at BHEL Cash counter to be remitted before 3.30 PM) or A/c Payee Demand Draft drawn in favour of M/s. Bharat Heavy Electricals Limited, Chennai – 600 035. Money order, Cheques and Postal Orders will not be accepted.

Bharat Heavy Electricals Limited takes no responsibility for any delay, loss or non - receipt of tender documents sent by post and also reserves the right to reject any or all the tender without assigning any reason thereof.

TENDER NOT ACCOMPANIED BY THE PRESCRIBED EARNEST MONEY DEPOSIT ARE LIABLE TO BE SUMMARILY REJECTED.

Please visit our **web site at “www. bhel.com”** for Corrigendum, if any, issued after publication of this Tender Notice.

Downloaded Tender documents should be submitted along with demand draft for the requisite amount towards the cost of tender documents

ADDITIONAL GENERAL MANAGER/CONTRACTS

TENDER SPECIFICATION: BHEL: PSSR: SCT: 1337

CERTIFICATE FOR NO DEVIATION

I, _____ M/s. _____

here by certify that there is no deviation from the Tender conditions
either technical or commercial and I am agreeing to all the terms and
conditions mentioned in the Tender Specification.

SIGNATURE OF THE TENDERER

OFFER OF CONTRACTOR

Additional General Manager/Contracts
Bharat Heavy Electricals Limited,
Power Sector : Southern Region
690, Anna Salai,
Nandanam,
Chennai – 600 035.

Sir,

I/We hereby offer to carry out the work detailed in Tender Specification No. BHEL: PSSR: SCT: 1337 issued by Bharat Heavy Electricals Limited, Power Sector: Southern Region, in accordance with the terms and conditions thereof.

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

1. Instructions to Tenderer
2. General Conditions of Contract
3. Special conditions of Contract
4. Other Section, Appendices and Schedules

I/We have deposited/forwarded herewith the Earnest Money Deposit/a sum of Rs.1,50,000/- (Rupees one Lakh fifty thousand only) vide DD. No. _____ Dt. _____ which shall be refunded should our offer not be accepted. Should our offer be accepted, I/We further agree to deposit such additional sum which along with the sum of Rs.1,50,000/- (Rupees one Lakh fifty thousand only) mentioned above, to make up the Security Deposit for the work as provided for in the Tender Specification within the stipulated time as may be indicated by BHEL, Power Sector: Southern Region, Chennai – 600 035.

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

DATE:

CONTRACTOR:

PLACE:

ADDRESS:

Witness with their address

Signature

Name

Address

RTPP MUDDANUR-UNIT-5 ROTATING EQUIPMENTS & AUXILIARIES

PROJECT INFORMATION

1.0 GENERAL

1.1 Authority : APGENCO

1.2 Name of Project : Rayalaseema Thermal Power Project
St.III (1 x 210 MW Units),
Muddanur, Unit-5 1x 210 MW

2.0 SITE LOCATION : V.V.Reddy Nagar,
Kalamalla Post, Cuddapah Dist
AP. PIN : 516 312, STD: 08563

2.1 Nearest Town : Prodattur (STD – 08564)

3.0 SITE CONDITIONS

3.1 Climate : Tropical – Hot – Humid

3.2 Altitude : 190 Meters above mean sea level

4.0 AMBIENT TEMPERATURES (DRY BULB)

4.1 Daily Minimum (Mean) :19.1 Deg C

4.2 Daily Maximum (Mean) :40.3 Deg C

4.3 Design ambient temperature
For continuous rating of meter : 50.0 Deg C

5.0 RELATIVE HUMIDITY

- 5.1 Maximum during monsoon
(June to October) : 49 to 74%
- 5.2 Humidity during summer : 35 to 60 %
(March to June)
- 5.3 Humidity during winter : 55 to 70 %
(November to March)

6.0 RAINFALL

- 6.1 Maximum per annum : 1273.6 mm
- 6.2 Average per annum : 742.8 mm
- 6.3 Tropical Monsoon : June to October

7.0 WIND VELOCITY & PRESSURE

- 7.1 Maximum Wind velocity : 175 KMPH
- 7.2 Basic Design wind Pressure : Up to 30 M height: 200 kg / m²

8.0 SEISMIC FACTORS

- 8.1 Horizontal seismic co-
Efficient : As per latest ISS: 1893
- 8.2 Vertical seismic co-efficient : As per latest ISS: 1893

- 9.0 Longitude : 18 Deg 28' East
- Latitude : 14 Deg 42' 3" North

- 10.0 Nearest Aerodrome : Hyderabad / Bangalore – 300 Kms

- 11.0 Nearest Railway Station : Muddanur on Madras –
Bombay Railway line.

SECTION III

COMMON CONDITIONS OF CONTRACT

FOR ERECTION WORK

3.1 SCOPE OF CONTRACT

- 3.1.1 The Intent of this specification is to provide erection testing and commissioning services for execution of projects according to most modern and proven techniques and codes. The omission of specific reference to any method and 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 project or portion of project awarded to him. The quoted rate shall deem to be inclusive of all such contingencies.
- 3.1.2 The contractor shall carry out the work in accordance with instructions/ drawings/ specification/ standard practices supplied by BHEL from time to time.
- 3.1.3 Provision of all types of labour, Supervisors, Engineers watch and ward as required, tools and tackles as required, consumables as required under various clauses of tender specification for handling transportation, erection, testing and commissioning.
- 3.1.4 Proper out-turn as per BHEL plan and commitment.
- 3.1.5 Completion of work in time.
- 3.1.6 Good quality and accurate workmanship for proper performance of equipment / systems.
- 3.1.7 Preservation of all components at all stages of pre-assembly/ erection/ testing and commissioning till unit is handed over.

3.2 FACILITIES TO BE PROVIDED BY BHEL:

3.2.1 OPEN SPACE :

Open space for building of temporary office shed and contractor's stores shed(s) will be provided free of hire charges. Contractor has to make his own arrangements for labour colony.

3.2.2 ELECTRICITY:

For construction purpose electricity shall be provided at single point free of charges by BHEL. Further distribution of electricity shall be arranged by the contractor at his cost.

3.2.3 WATER:

For construction purpose water will be provided at a single point, free of charge, by BHEL. Further distribution shall be arranged by the contractor at his cost.

3.2.4 TOOLS & TACKLES:

All the Tools & Plants required for the complete erection of components shall be arranged by the contractor at his cost except the items specified and agreed upon by BHEL and quoted rate shall inclusive of such requirements.

3.2.5 CONSUMABLES:

All consumables, electrodes and filler wires, etc. are to be arranged by the contractor at his cost. These are governed by clause 3.4 and 3.5 of Tender Specification.

3.3 FACILITIES TO BE PROVIDED AND DEVELOPED BY THE CONTRACTOR AT HIS COST.

3.3.1 CIVIL CONSTRUCTION:

It shall be the responsibility of the contractor to construct his own office shed, stores shed, with all facilities like electricity, water supply, sanitary arrangements in the area allotted to him for the purpose.

3.3.2 WATER DISTRIBUTION:

Distribution of water for construction purpose as well as drinking purpose from the single point provided by BHEL to various work-fronts shall be contractor's responsibility and at his cost.

3.3.3 Any duty/deposit involved in getting the electricity shall also be borne by the contractor. As regards contractor's office stores also, all such expenditure shall be borne by the contractor.

3.3.4 ELECTRICITY DISTRIBUTION:

Provision of distribution of electrical power from the given single central common point to the required places with proper distribution boards, approved cable and cable laying including supply of all materials like cables, switch boards, pipes etc. observing the safety rules laid down by electrical authority of the State / BHEL / their customer with appropriate statutory requirements shall be the responsibility of the Contractor / Tenderer.

3.3.5 POSSESSION OF GENERATORS

As there are bound to be interruptions in regular power supply, power cut / load shedding in any construction sites, due to inherent power shortage in Stage on this account, suitable extension of time, if found necessary only be given and contractor is not entitled for any compensation. It shall be the responsibility of the Contractor / contractor to provide, maintain the complete installation on the load side of the supply with due regard to safety requirements at site. It shall be the responsibility of the contractor to have at least (2 to 4) diesel operated welding generator sets to get urgent and important work to go on without interruptions. The consumables required to operate the generators are to be provided by Contractors. This may also be noted while quoting.

3.3.6 LIGHTING FACILITY:

Adequate lighting facilities such as flood lamps, low volt hand lamps and area lighting shall be arranged by the contractor at the site of construction, contractor's material storage area etc. at his cost.

3.3.7 POWER REQUIREMENT:

For the purpose of planning, contractor shall furnish along with tender the estimated requirement of power (month wise) for execution of work in terms of maximum KW demand.

3.3.8 CONTRACTOR'S OBLIGATION ON COMPLETION :

On Completion of work, all the temporary buildings, structures, pipe lines, cable etc. shall be dismantled and leveled and debris shall be removed as per instruction of BHEL by the contractor at his cost. In the event of his failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.

3.4 GASES :

- 3.4.1 All required gases like Oxygen/ acetylene/ argon/ Nitrogen required for work shall be supplied by the Contractor at his cost. It shall be the responsibility of the contractor to plan the activities and store sufficient quantity of these gases. Non-availability of gases cannot be considered as reasons for not attaining the required progress.
- 3.4.2 BHEL reserves the right to reject the use of any gas in case required purity is not maintained.
- 3.4.3 The contractor shall submit weekly / fortnightly / monthly statement report regarding consumption of all consumables for cost analysis purposes.
- 3.4.4 The contractor shall ensure safe keeping of the inflammable cylinder at a separate place away from normal habit with proper security etc.
- 3.4.5 The contractor shall arrange air / gas manifold ensuring proper distribution and reduction of handling time.

3.5 ELECTRODES

- 3.5.1 All the required electrodes including filler wires and S.S. electrodes as approved by BHEL shall be arranged by contractor at his cost. It shall be the responsibility of the contractor to obtain prior approval of BHEL, before procurement regarding, suppliers, type of electrodes etc. On receipt of the electrodes at site, it shall be subject to inspection and approval by BHEL. The contractor shall inform BHEL details regarding type of electrodes, batch number and date of expiry etc.
- 3.5.2 Shortage of any of the above electrodes or the equivalent suggested by BHEL shall not quote as reason for deficiency in progress or for additional rate.
- 3.5.3 Storage of electrodes shall be done in an air conditioned / humidity controlled room as per requirement, at his cost by the contractor.
- 3.5.4 All low hydrogen electrodes shall be baked / dried in the electrode drying oven to the temperature and period specified by the BHEL Engineer before they are used in erection work and each welder should be provided with one portable electrode drying oven at the work spot. Electrode drying oven and portable drying ovens shall be provided by contractor at his cost.
- 3.5.5 In case of improper arrangement of procurement of above electrodes BHEL reserves the right to procure the same from any source and recover the cost from the contractor's first subsequent bills at market value plus departmental charges of BHEL communicated from time to time. Postponement of such recovery is not permitted.
- 3.5.6 BHEL reserves the right to reject the use of any electrodes at any stage if found defective because of bad quality, improper storage, date of expiry, unapproved type of electrodes etc. It shall be the responsibility of the contractor to replace at his cost without loss of time.

3.6 TOOLS & TACKLES

- 3.6.1 BHEL will provide free of hire charges on sharing basis the tools and plants indicated in Appendix III. It may be noted that distribution of these equipments will be done by BHEL

Engineers and the decision of the Engineer shall be final in this regard.

- 3.6.2 BHEL will provide a 75 MT crane -1 No free of hire charges on sharing basis depending upon the site requirement. Contractor has to arrange crane operator, Fuel for the above crane at his cost.
- 3.6.3 The Contractor shall be responsible for the safe and proper use of the above equipments issued to him. Day-to-day maintenance and operation of the equipments shall be the contractor's responsibility and shall be as per instructions/standard practice of BHEL Engineer.
- 3.6.4 Any loss/damage to any or part of the above equipments shall be to contractor's account and the expenditures on this account will be recovered from contractor's bills in case contractor fails to make good the loss.
- 3.6.5 Necessary electrical / water / air connection required for operation of any of the above equipment shall be Contractor's account.
- 3.6.6 Non-availability of any of the above equipment either due to breakdown/routine maintenance or due to distribution pattern of BHEL shall not be quoted as reason for delay of work.
- 3.6.7 Monthly utilisation report of the above equipment shall be furnished by contractor for cost analysis purpose.
- 3.6.8 The contractor shall return the T & P issued to him by BHEL in good working condition as and when so desired by BHEL. (On completion or reduction in work load) for diversion for other work. If such return is delayed by contractor due to his fault without written consent of BHEL, hire charges as applicable according to BHEL policy will be levied from such time it was requisitioned by BHEL to the time of actual return and the amount so decided and arrived at, will be recovered from the contractor's bill.
- 3.6.9 All other T & P required for the satisfactory execution of work shall be arranged by contractor.
- 3.6.10 All the T & P arranged by contractor including electrical connections wherein required shall be reliable / proven / tested with necessary test certificate.

- 3.6.11 All instruments, measuring tools etc. are to be calibrated periodically as per the requirement of BHEL and necessary calibration certificates are to be submitted to BHEL before use.
- 3.6.12 The contractor has to return the T & P in good working condition and cost of any replacement required has to be borne by the contractor. Normal wear and tear will be taken into account.
- 3.6.13 Contractor shall have at all times experienced operators and technicians for routine and breakdown maintenance of the equipment. Any delay in rectification of defects will warrant BHEL rectifying and charging the cost to the contractor.
- 3.6.14 If at any time it is noticed that contractor is not using any of the T & P or equipment properly according to the instructions of BHEL, BHEL will have the right to withdraw any and all such equipment and any cost due to this shall be contractor's account.
- 3.6.15 All the T & P would be issued only at BHEL stores and it shall be the responsibility of the contractor to take delivery from BHEL stores, transport the same to site and return the same to BHEL stores in good condition after use.
- 3.6.16 All the T & P, lifting tackles including wire ropes, slings, shackles and electrically operated equipment shall be got approved by BHEL Engineer before they are actually put on use. Test certificates should be submitted before their usage. Test certificate obtained from the statutory authority should be submitted before their usage.
- 3.6.17 Contractor shall take into consideration the above clause and quote the rates as called for in the Rate Schedule.
- 3.6.18 During the execution of the work, it become necessary for the contractor to deploy his manpower for reduction/increasing the boom length of the crane to suit the erection condition. It shall be the indenting contractor's responsibility to arrange for necessary manpower / hand tools / illumination / supports / consumables, etc. and the quoted rate shall include such services. Similarly, all assistance required during preventive maintenance shall be provided by the contractor.

- 3.6.19 The list of minimum T & Ps required to be deployed by the contractor is indicated in APPENDIX – II. The list is minimum and not exhaustive but anything required over and above these to suit the site condition / rate of progress / nature of work shall be arranged by contractor at his own cost.
- 3.6.20 Contractor shall make good any loss or damage to the equipments supplied to him.
- 3.6.21 It may be noted that contractor has to provide suitable experienced operators and helpers for the operation of the cranes provided by BHEL. For the operation and maintenance of these equipments, contractor has to provide the required fuel at his cost.
- 3.6.22 However, if the contractor fails to provide experienced crane operator, BHEL reserves the right to engage them at the cost of contractor. If the necessary fuel is not provided by contractor, they will be provided by BHEL at the cost of the contractor.
- 3.6.23 As the crane available with BHEL are likely to be deployed for various contractors, the decision of BHEL Engineers will be final with regard to allotment of crane for day to day use.
- 3.6.24 The availability of crane are likely to be hampered from time to time due to routine preventive maintenance or breakdown maintenance. Contractor has to make alternative arrangements or plan / amend / alter his activities with the consent of BHEL Engineer to suit the above conditions and the contractor will not be liable for any compensation due to this.
- 3.6.25 The contractor has to keep and maintain a log book every day which will be provided by BHEL and this has to be countersigned by BHEL Engineer every day.
- 3.6.26 For the movement of cranes, it may become necessary to lay sleeper bed for obtaining leveled safe approach for use of equipment. Necessary sleepers shall be arranged by the contractor at his cost and it will be the contractor's responsibility to arrange for laying of sleepers for this at his cost.

3.7 SUPERVISORY STAFF AND WORKMEN

- 3.7.1 The Contractor shall supply all the skilled workmen like Welders, Gas cutters, electricians, Riggers, Serangs, Erectors, carpenters, fitters etc. in addition to other skilled semi-skilled and unskilled workmen required for all the works of handling and transportation from site stores/storage yard to erection site, transportation, erection, testing and commissioning contemplated under this 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 employed by the contractor, BHEL reserves right to insist on removal of any employee of the contractor at any time, if they find him unsuitable and the contractor shall forthwith remove him.
- 3.7.2 The supervisory staff employed by the contractor shall be qualified (Engineers – Graduates in Engineering and Supervisors – Diploma Holders) and experienced in the area of work. They shall ensure proper out-turn of work and discipline on the part of labour put on the job by the contractor and in general see that the works are carried out in safe and proper manner and in coordination with other labour and staff employed directly by BHEL or BHEL's client.
- 3.7.3 The Contractor shall also furnish daily labour report showing by classification the number of employees engaged in various categories of work and a progress report of work as required by BHEL Engineer. The contractor shall also give a summary report at the end of the month and plan of deployment for the consequent month as per the plan of activities as required by BHEL, to meet the overall contract requirement.
- 3.7.4 The work shall be executed under the usual conditions existing in major power plant construction and in conjunction with numerous other operations at site. The bidder and his personnel shall co-operate with other personnel other contractor coordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.
- 3.7.5 The contractor's supervisory staff shall execute the work in the most substantial and workman like manner in the

stipulated time. Accuracy of work, good workmanship 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/instructions given by BHEL Engineers from time to time. Wherever finish or tolerances are not specified in drawings/documents, BHEL Engineers instruction is taken as final.

- 3.7.6 The contractor shall employ the necessary number of qualified and approved full time electricians at his cost to maintain his temporary electrical installation till the completion of work.
- 3.7.7 It is the responsibility of the bidder to engage his workmen in shifts or on overtime basis for achieving the target set by BHEL and also during erection, commissioning and testing period. The contractor's quoted rate shall include all these contingencies.
- 3.7.8 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 wires, trees or any other property or to any part of the 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's decision is final) from any money due to the contractor.

3.8 CIVIL WORKS

- 3.8.1 Equipment foundation and foundation of other plants and necessary civil works shall be provided by BHEL. The dimension of the foundation and anchor bolt pits shall be checked by the contractor for their correctness as per drawings. Further, top elevation of foundations shall be checked with respect to bench mark etc. All adjustments of foundations surfaces, enlarging the pockets in foundations etc. as may be required for the erection of equipments plants shall be carried out by the contractor.
- 3.8.2 The contractor at his cost shall arrange for grouting of foundation bolt holes of equipments and other plants as specified in the drawings / specification or as advised by the Engineer of BHEL after preparing the foundation top

surface for grouting, All the materials for grouting (sand, gravel & cement including special cement shall be arranged by the contractor. The grouting has to be done up to basement level. The required consumables like Portland cement, gravel, sand etc., have to be provided by the contractor at his cost. Special cement like conbextra GP1/GP2 / shrinkomp or its equivalent shall be arranged by the contractor at his cost.

- 3.8.3 The contractor at his cost shall arrange for grouting of anchor points of T & P issued to him and also grouting of winches or any other supports required for T & Ps. Necessary grout materials are to be arranged by the contractor at his cost.

3.9 SCOPE OF MATERIAL HANDLING AND SITE STORAGE AND OTHER RESPONSIBILITIES

- 3.9.1 While BHEL will endeavor to store/stack/identify materials properly in their open/closed storage yard/shed it shall be contractor's responsibility to assist BHEL in identifying materials well in time for erection, taking delivery of the same in time following the procedure indicated by BHEL and transport the material safely to pre-assembly yard/erection site in time according to programme.
- 3.9.2 The contractor shall identify necessary supervisor/labour for the above work in sufficient quantity as may be needed by BHEL for areas covering their scope.
- 3.9.3 It shall be contractor's responsibility to arrange necessary cranes / tractors, traylor or trucks / slings / tools and tackles / labour including operators, Fuel, lubricants etc., for loading from storage yard and on to transport equipment, move it to erection site/pre-assembly yard and unload the same at pre-assembly yard/ erection site and the quoted rate shall include the same.
- 3.9.4 All equipment so used by contractor shall be of proven quality and safe in operation as approved by BHEL site Engineers from time to time.
- 3.9.5 Any loss/damage to materials issued to contractor shall be made good by him or BHEL will arrange for replacement at cost recovery basis and decision of BHEL shall be final.

- 3.9.6 All the surplus damaged, unused materials, package materials/containers/special transporting frames, gunny bags etc. supplied by BHEL shall be returned to the BHEL Stores by the contractor and maintain records.
- 3.9.7 The contractor shall take delivery of the components and equipments and special consumables from the storage area after getting the approval of the BHEL Engineer on standard indent forms to be specified by BHEL. At periodic/intervals of work, complete and detailed account of the equipment so erected and electrodes used shall be submitted to the BHEL Engineer.
- 3.9.8 The contractor shall submit monthly plan for erection and the same will be mutually agreed upon after discussion. The contractor shall arrange for Engineers, Supervisors and labour force and tools and plants and consumables to suit the above plan and execute the work accordingly.
- 3.9.9 The Contractor shall have total responsibility for all equipment and materials in his custody, stores, loose, semi-assembled, assembled or erected by him at site.
- 3.9.10 The contractor shall make suitable security arrangement including employment of security personnel to ensure the protection of all materials/equipments and works from theft, fire, pilferage and any other damage and loss.
- 3.9.11 The contractor shall ensure that the packing materials and protection devices used for the various equipments during transit and storage are removed before these equipments are installed.
- 3.9.12 All equipments shall be handled very carefully to prevent any damage or loss. No bare wire ropes, slings etc. shall be used for unloading and / or handling of the equipments without the specific written permission of the Engineer. The equipments from the storage yard shall be moved to the actual site of erection / location at the appropriate time as per the direction of BHEL Engineer so as to avoid damage for such equipments at site.
- 3.9.13 The work covered under this scope of work is of highly sophisticated nature requiring best quality / precision workmanship engineering and construction management. He should also ensure successful and timely commercial operation of equipment installed. The contractor must have

adequate quantity of precision tools, construction aids in possession. Contractor must also have adequate trained qualified and experienced supervisory staff and skilled personnel.

- 3.9.14 All the necessary certificates and licenses required to carry out this scope of work are to be arranged by the contractor then and there at no extra cost.
- 3.9.15 The contractor shall take all reasonable care to protect the materials and work till such time the erected equipment has been taken over by BHEL/their client. Wherever necessary suitable temporary fencing and lighting shall have to be provided by the contractor as a safety measure against accident and damage of property of BHEL. Suitable caution notices shall be displayed where access to any part may be deemed to be unsafe and hazardous.
- 3.9.16 The contractor shall be responsible for taking all safety precautions during the construction and keeping the site safe at all times. When the work is temporarily suspended he shall protect all construction materials, equipments and facilities from causing damage to existing property interfering with the operations of the station when it goes into services. The contractor shall comply with all applicable provisions of the safety regulations clean-up programme and other precautionary measures which the BHEL has in effect at the site.
- 3.9.17 All lifting tackles including wire ropes, slings, shackles etc. used by the contractor shall be got approved by BHEL Engineer at site before they are actually put on the work. It will be the responsibility of the contractor to ensure safe lifting of the equipment taking due precautions to avoid any accidents and damage to other equipments and personnel. All piping shall be adequately supported and protected to prevent damage during handling and erection. The history cards for major equipments to be maintained by the contractor.
- 3.9.18 The contractor shall take delivery of equipment from storage yard/stores/sheds. He shall also make arrangements for verification of equipment, maintain records and keep safe custody watch and ward of equipment after it has been handed over to him till these are fully erected, tested and commissioned and taken over

by BHEL's client. The stolen/lost/damaged goods shall have to be made good by the contractor at his own cost.

- 3.9.19 Sometimes it may become necessary for the contractor to handle certain un-required components in order to take out the required materials. The contractor has to take this contingency also into account. No extra payment is payable for such contingencies.

3.10 WELDING

- 3.10.1 All structural welders shall be tested and approved by BHEL Engineer before they are actually engaged on work though they may possess the required certificate. BHEL reserves the right to reject welders without assigning any reason.

- 3.10.2 BHEL Engineer is entitled to stop any Welder from the work if his work is unsatisfactory for any technical reasons or there is a high percentage of rejection of joints welded by him, which in opinion of the BHEL Engineer will adversely affect the quality of the welding though the welders have earlier passed the tests prescribed by BHEL Engineers. The welders having passed qualification tests do not relieve the contractor of a contractual obligation to check the welders performance.

- 3.10.3 All charges towards testing of welders for destructive and non-destructive test, testing and approval of welders for engaging in the erection work shall be borne by the contractor.

- 3.10.4 All welded joints shall be subjected to acceptance by BHEL Engineer.

3.11.0 PRESERVATION OF COMPONENTS

- 3.11.1 It shall be the responsibility of the contractor to apply preservative painting on all equipment before erection. It shall be contractor's responsibility to arrange for required labour, brush, paint and other consumables like thinner, cotton waste, cloth etc. for carrying out preservative painting. The quoted rates shall be inclusive of above work.

- 3.11.2 The contractor shall effectively protect the finished work from action of weather and from damage or defacement and shall cover the finished parts, then and there for their protection.

- 3.11.3 Any failure on the part of contractor to carry out work according to above clauses will entail BHEL to carry out the job from any other party and recover the cost from contractor.
- 3.11.4 Due to atmospheric conditions erected materials are likely to get rusted more frequently. It is the responsibility of the contractor to preserve the erection materials drawn from stores for erection till these are commissioned and handed over to customer. The required paint, thinner all other consumables like painting brush, emery paper, cotton waste, cloth etc. have to be arranged by the contractor at his cost. The contractor should ensure that the materials are not rusted on any account till they are handed over to customer. The decision of the BHEL Engineer is final with regard to frequency of application of paint.

3.12.0 DRAWINGS AND DOCUMENTS

- 3.12.1 The detailed drawing specification available with BHEL Engineers will form part of this tender specification. These documents will be made available to the contractor during execution of work at site.
- 3.12.2 One set of necessary drawings to carry out the erection work will be furnished to the contractor by BHEL on loan which shall be returned to BHEL Engineer at site after completion of work. Contractor's personnel shall take care of these documents given to them. Contractor shall maintain complete records of drawings and documents given to them time to time and maintain the latest drawings / documents in their custody. Contractor shall refrain from defacing the drawing / documents available with them.
- 3.12.3 The data furnished in various appendices enclosed with this Tender Specification, describes the equipment to be installed, tested and commissioned under this specification briefly. However, the changes in the design and in the quantity may be expected to occur as is usual in any such large scales of work.
- 3.12.4 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's interpretation in such cases shall be final and binding on the contractor.

- 3.12.5 Deviation from design dimensions should not exceed permissible limit. The contractor shall not correct or alter any dimensions/details without specific approval of BHEL.

3.13 SITE CLEANLINESS AND SAFETY REQUIREMENTS

- 3.13.1 Contractor shall strictly follow all safety regulations / conditions as per general conditions of contract booklet enclosed with this tender.
- 3.13.2 Non-conformity of safety rules and safety appliances will be viewed seriously and the BHEL has right to impose fines on the contractor as under:

Sl.No.	Safety measures	Fine (Rs)
01	Not wearing safety helmet	50/-
02	<i>Not wearing safety belt</i>	100/-
03	Grinding without goggles	50/-
04	Not using 24V supply for internal work	500/-
05	<i>Electrical plugs not used for hand machines</i>	100/-
06	Not slinging properly	200/-
07	<i>Using damaged sling</i>	200/-
08	Lifting cylinders without cage	500/-
09	Not using proper welding cable with lot of joints and not insulated properly	200/-
10	Not removing small scrap from platforms	200/-
11	Gas cutting without taking proper precaution or not using sheet below gas cutting	200/-
12	<i>Not maintaining elec. Winches which are being operated dangerously</i>	500/-

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- 3.13.3 The contractor should exclusively deploy one Safety Engineer along with a safety supervisor for effective implementation and co-ordination of safe working conditions.
- 3.13.4 CONTRACTOR SHALL DEPLOY A SAFETY OFFICER EXCLUSIVELY TO HANDLE SAFETY REQUIREMENT.

SPECIFIC REQUIREMENTS FOR ISO 9002

3.14.0 IMPORTANT NOTE

Contractors shall ensure that all their Staff/Employees are exposed to periodical training programme conducted by qualified agencies/ personnel on ISO 9002 Standards.

Contractors shall ensure that the Quality is maintained in all the works connected with this contract at all stages of the requirement of BHEL.

Contractor shall ensure that all Inspection, Measuring and Testing equipment that are used, whether owned by the contractor or used on loan, are calibrated by the authorized agencies and the valid calibration certificate will be available with them for verification by BHEL. A list of such instruments possessed by contractor at site with its calibration status is to be submitted to BHEL Engineer for control.

Contractors shall arrange for the inspection of the works at various stages as required by BHEL. Immediate corrective action shall be taken by the contractor for the non-conformances if any, observed and pointed out by BHEL.

3.15.0 INSPECTION / QUALITY ASSURANCE / QUALITY CONTROL STATUTORY INSPECTION

- 3.15.1 Various Inspection / quality control / quality assurance procedures/methods at various stages of erection and commissioning will be as per BHEL / Customer quality control procedure/codes/IBR and other statutory provisions and as per BHEL Engineer's instructions.

- 3.15.2** Preparation of quality assurance log sheets and protocols with customer's Engineers, welding logs and other quality control and quality assurance documentation as per BHEL Engineer's Instructions is within the scope of work / specification.
- 3.15.3 The protocols between contractor and customer/BHEL shall be made prior to installation for correctness of foundations, materials, procedures, at each stage of Installation, generally as per the requirement of Customer/BHEL. This is necessary to ensure elimination of errors or keeping them within tolerable limits and to avoid accumulation and multiplication of errors.
- 3.15.4 A Daily log Book should be maintained by every supervisor/Engineer of contractor on the job in Duplicate (One for BHEL and one for Contractor) for detailing and incorporating Alignment/clearance/centering/Leveling Readings and Inspection details.
- 3.15.5 All the Important Measurements shall be recorded in the Daily Log Book with sketches based on BHEL Drawings indicating Readings / Measurements actually Taken and Signed by BHEL/Customer / Contractor Representatives.
- 3.15.6 Approval Given by Customer/BHEL for welding, results tests etc. shall also be recorded in the log book.
- 3.15.7 All the Electrical/Technical Measuring and Testing Instruments/Gauges, Feeler Gauges, Height Gauges, Dial Gauges, Micrometers, Levels, Spirit Levels, Surface plates, straight Edges, vernier calipers and all measuring instruments shall be provided by the contractor for checking, Leveling, Alignment, centering etc of Erected Equipments at various stages. The Instruments / gauges / Tools etc. provided should be of Brand, Quality and Accuracy, Specified by BHEL Engineer and should have necessary calibration and other certificates as per the requirements of BHEL Engineer.
- 3.15.8 Total Quality is the Watch Ward of the work and standards, Procedures laid down by BHEL. We shall follow all the Instructions as per BHEL Drawings and Quality / Standards. Contractor shall provide for the services of quality Assurance Engineer.

3.16.0 STAGE INSPECTION BY FES / QA ENGINEERS

- 3.16.1 Apart from Day-to-Day Inspection by BHEL Engineers Stationed at site and also by Customer's Engineers, Stage Inspection of Equipment under Erection and commissioning at various stages of Erection and commissioning by TEAMS of Engineers, from Field Engineering Services of BHEL's Manufacturing units and Quality Assurance Teams from Field Quality Assurance Unit/ Factory Quality Assurance and commissioning Engineers. Contractor shall arrange all labour, Tools and Tackles, etc. for such stage inspections free of cost.
- 3.16.2 Any modifications suggested by FES and QA Engineers Team shall be carried out. Claims of Contractor, if any shall be dealt as applicable.
- 3.16.3 Any minor rectifications of minor repairs of defective work found out during stage Inspection shall be rectified free of cost, by the contractor.
- 3.16.4 Any major Rectification or Major Repair / Major Rework of Defective work found out during stage Inspection verification / checking, But not attributable to contractor shall also be carried out. Claims of contractor if any, shall be dealt as possible.

3.17.0 STATUTORY INSPECTION

- 3.17.1 The scope includes getting the Approvals from the statutory authorities (Like Boiler Inspector and labour officers). This includes arranging for inspection visits of Boiler Inspector periodically as per BHEL Engineer's instructions, submitting documents, radiograph, etc. and following up the matter with them.
- 3.17.2 All fees connected with the contractors for testing his welders / men / workers and testing, inspection calibrating of his instruments and equipments, shall be paid by the contractor. It shall be the contractor's responsibility to obtain approval of statutory authorities, wherever applicable, for the conducting of any work which comes under the purview of these authorities. Any cost arising from this shall be the contractor's account. However, BHEL shall pay all other fees. (FEES FOR VISITS INSPECTION FEES, REGISTRATION FEES, ETC.) In case these

inspections have to be repeated due to default / fault of the contractor and fees have to be paid again, the contractor shall have to bear the charges. These would be deducted from his bills.

3.18.0 PROGRESS OF WORK

During the course of erection, if the progress is found unsatisfactory, or if the target dates fixed from time to time for every milestone are to be advanced, or in the opinion of BHEL, if it is found that the skilled workmen like fitters, operators, technicians employed are not sufficient BHEL will induct required additional workmen to improve the progress and recover all charge incurred on this account including all expenses together with BHEL overheads from contractor's bills.

The contractor shall submit daily, weekly and monthly progress reports, manpower reports, materials reports, consumables report and other reports considered necessary by the Engineer.

The manpower reports shall clearly indicate the manpower deployed category wise daily, specifying also the activities in which they are engaged.

The progress reports shall indicate that progress achieved against planned with reasons indicating delays if any, shall also furnish in detail the reasons for the same and shall give remedial action which the contractor intends to make good the slippage or lost time, so that further works can proceed as per the original programme and the slippage do not accumulate and affect the overall programme, in a format designed and approved by BHEL site Engineer.

The contractor shall arrange for weekly progress review meetings with the "Engineer" at site during which actual progress during the week vis-à-vis schedule programme shall be discussed for action to be taken for achieving targets. The programme for subsequent week shall also be presented by the contractor for discussions. The contractor shall constantly update / revise his work programme to meet the overall requirement and suit the material availability.

The contractor shall arrange for submitting 3 set of progress photographs every month to BHEL office, the areas to be photographed will be as per the instructions of BHEL Engineer. The quoted rate shall include this contingency.

The contractor must obtain the signature and permission of the security personnel of the customer for bringing any of their materials inside the site premises. Without the Entry Gate Pass these materials will not be allowed to be taken outside.

HSE SPECIFIC REQUIREMENT

OCCUPATIONAL HEALTH & SAFETY MANAGEMENT SYSTEM

SUB CONTRACTOR TO ENSURE COMPLIANCE OF THE FOLLOWING HEALTH RELATED POINTS

01. Sub-contractor to identify nearest hospital for Health check up of his staff and workers and intimate BHEL site office & PSSR HQ.
02. To arrange for occupational health check up / screening of contractor's staff and workers engaged in sub contracting activities. In this, category of workmen such as welders, gas cutters, grinders, radiographers, crane operators are to be given exclusive attention in respect of health screening.
- 03. Sub-contractor to arrange an ambulance vehicle or emergency vehicle on a continuous basis to meet any emergency situation arising at site work in which his staff and workers are engaged.**
04. To provide appropriate facilities for prompt first aid treatment of injuries and illness at work. Each sub-contractor to be provided with one first aider. First Aider should undergo training on first aid.
05. To provide filtered drinking water at selected place in a clean container.

SUB CONTRACTOR TO ENSURE COMPLIANCE OF THE FOLLOWING SAFETY RELATED POINTS

01. Personnel protective equipment (PPES): Required number of following PPES (Confirming to Relevant is Standards) to be made available to workmen at site and ensured that they are used .
 - Helmet
 - Safety goggles
 - Welding face shields
 - Safety belts for working at heights
 - Safety shoes
 - Ear plugs
 - Rubber gloves and mats for low tension (I.T) electrical works
 - Gum boots & aprons
 - Other items as required by BHEL site
02. Sub contractor to liase with nearest fire station and inform contact telephone number and contact person to meet any emergency.
03. To provide appropriate fire fighting equipment at designated work place and to provide fire fighting training to selected persons in his group of workmen to meet emergencies.
04. To provide adequate number of 24 V power supply points to work in a constrained and enclosed space.
05. All power tapping points / switch boards /power & control cabling should fulfill required electrical safety aspects as per relevant is standard.
06. ELCB's (Earth leak circuit breakers) at all electrical distribution points to be provided.
07. Red and white caution tape of proper width (1.5 to 2 inch) to be used for cordoning unsafe area such as open trench, excavated area, etc.
08. To provide sub-contractors company logo or clothing to all staff and workers for identification including identity cards with photographs approved by BHEL.
09. High pressure and structural welders to be identified with colour clothing and to display copy of welders certificate with photographs of welder at the work place. They also should be in possession of valid welding procedure.

10. To display safe handling procedure for all chemicals such as lube oil, grease, sealing compound, kerosene, diesel etc. at stores & respective work place.
11. Contractor should authorise a person at site to stop work if there is a unsafe work noticed as per his knowledge.
12. Fitness for use of erected scaffolding to be certified by the contractors approved scaffolder and the certificate should be displayed on the scaffolding itself. If the scaffolding is unsafe, the same will not be used. The certificate to be updated daily. The scaffolding to be made as per the relevant is standard.
13. For making platform on the scaffolding , proper thickness and size of the plank of required quality wood to be used. The safe working load of the platform to be displayed on the scaffolding itself. Proper use of platform to be explained to the user.
14. All plant equipment should have inspection report before put in to use.
15. All T&Ps should be of reputed brand and having quality certificates.
16. All IMTES should have valid calibration certificate from recommended institution / testing lab and these should be in place.
17. All lifting tackle and plant equipment should have safe working load certificate.
18. The right worker should be deployed for right job and the resume of site incharge, supervisors, and key workers to be submitted before commencement of work.
19. Sub-contractor should submit inspection / testing matrix of all T&Ps and to be approved by BHEL.
20. Sub-contractor to display safety slogan, safety board, caution boards wherever required in consultation with BHEL.
21. Sub-contractor to provide gas detectors of reputed make at desired locations.

22. Sub-contractor to conduct emergency mock drills. one drill per 6 month and submit report to BHEL.
23. Safe handling and storing of all equipment with adequate space to be ensured.
24. Sub contractor to deploy safety supervisor till the completion of the project.
25. Sub contractor to comply the safety reporting procedure of BHEL as practiced at present and also additional requirements that may arise out of future improvements in the safety management system. This includes computation of safety indices such as frequency rate, severity rate & incident rate.
26. Sub contractor to identify probable emergency situations such as electric shocks to workmen, caving in of shored earth , fall from height, collapse of scaffolding , fire etc., and should have clear action plan to overcome them. Sub contractor to take required guidance from BHEL in this regard.
27. Sub contractor to identify hazardous activities which he may carryout and should train his workmen in those activities with the relevant operation control procedures. Sub contractor to take required guidance from BHEL in this regard.
28. Safe work permit system to be followed while working in confined space / near electric systems.

SUB CONTRACTOR TO ENSURE COMPLIANCE OF THE FOLLOWING ENVIRONMENT RELATED POINTS

1. HOUSE KEEPING: Sub contractor to carry out daily house keeping of work areas / stores through a check list prepared in consultation with BHEL.
2. Sub contractor shall adopt pollution prevention / reduce /control approach in all his site activities. this shall include:
 - a. Transporting of oil / chemicals from stores to site safely without causing spillage. In case of any spillage, the area shall be cleaned and the remanant spilled oil disposed off to a safe place, identified for such disposal.

- b. To use required containers / cans / safety gadgets /appliances for transporting and for usage of oil / chemicals at site.
3. Sub contractor shall arrange for segregation / collection of scraps and dispose off to the identified place meant for scrap collection.
4. Sub contractor to adopt good erection practices / procedures with the objective of reduction of waste generation / rework

OTHER HSE REQUIREMENTS TO BE COMPLIED BY SUB CONTRACTOR

1. Sub contractor to clearly understand and accept the HCE policy of PSSR with a commitment to comply the requirements of the policy.
2. Sub contractors to arrange for daily meeting of their supervisors and work force before they disperse for their daily planned activities where in the relevant health, safety and environment aspects of the job and use of PPES are explained
3. Sub contractor to conduct monthly HSE meeting (internal) and submit the report to BHEL.
4. HSE slogans to be displayed in a proper board – hoarding at designated places in consultation with BHEL.
5. Sub contractor to submit a structured programme for training & occupational Health Screening of their work force at site after the Award of LOI.

SECTION VI

SCOPE OF WORK AND SPECIAL CONDITION OF CONTRACT

6.1 SCOPE OF WORK

6.1.1 The work to be carried out at quoted/accepted rates by the contractor under the scope of these specifications covers the complete work of handling, loading and transporting of materials from project stores sheds / storage yards to site of erection or pre assembly yard and unloading at pre-assembly area/erection site, checking, cleaning chipping and leveling of foundations, providing packers and shims/pre-assembling of equipments at the pre-assembly yard, inspection, minor rectification, preservation, erection, leveling, and other adjustments, cutting, edge/surface preparation, welding, grinding, radiography, LPI/MPI testing wherever needed, heat treatment, carrying out all pre-commissioning tests and trial runs of the equipments, and supply and application of final painting covered under the tender specifications and providing adequate assistance during commissioning and unit trial operations.

6.1.2 The work shall conform to dimensions and tolerances given in various drawings and quality manuals provided by BHEL. 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 by 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 bill towards expenditure incurred including BHEL's overhead charges.

6.2 FOUNDATION DRESSING AND GROUTING

6.2.1 It shall be contractor's responsibility to check the various equipment foundations for their correctness with respect to level, orientation, dimensions etc., and ascertained dimensions shall be measured and submitted to BHEL for approval before erection. Also minor chipping, dressing of foundations upto 50mm for obtaining proper face for packer plates/shims, as may be required for the erection of

the equipment/plants will have to be carried out by the contractor without extra cost.

6.2.2 The surface of foundations shall be dressed to bring the surface of the foundations to the required level and smoothness prior to placement of equipment/equipments based on the foundation.

6.2.3 All equipment bases and structural steel bases and foundations pockets shall be grouted and finished as per these specifications after surface preparation unless otherwise recommended by the equipment manufacturers. The surface preparation includes soda washing of the foundations to remove oil, grease etc. to ensure proper grouting. The contractor at his cost shall arrange the required materials like sand, gravel, cement etc and cleaning consumables. Special cement like conbextra, shrink-comp or its equivalent etc. required for grouting, as specified by BHEL engineer will be arranged by the contractor at his cost.

6.2.4 The concrete foundation surfaces shall be properly prepared by chipping, as required to bring the top of such foundation to the required level to provide the necessary roughness for bondage and to ensure enough bearing strength. All laitance and surface film shall be removed and cleaned and the packers placed with suitable mortar prior to erection of the equipment. The contractor shall ensure perfect matching of the packer plates with foundations by dressing the foundation and between the packer plates and the base plates of structural columns to the satisfaction of BHEL Engineer.

6.2.5 Total grouting of the equipments including pocket grouting, grouting at the gap between foundation and base plates top surface of equipments is in the scope of the contractor. All the grouting shall be carried out by non-shrink cement like conbextra GPI/Conbextra GP II or its equivalent etc. The contractor at his cost shall arrange this special non-shrink cement. The quoted rate shall inclusive of the same.

6.2.6 **PROCEDURE FOR GROUTING**

Contractor has to carryout the grouting as per the work instructions for grouting available at site.

All the materials required for grouting including special cements like conbextra GPI, GP2, ACC-Shrinkkomp – N20, Sika Ankor, NSG / NSG – 1, CICO Excem GP or its

equivalent as approved by BHEL and other materials like Portland cement, sand, etc. are to be arranged by the contractor at his cost.

6.3 SCOPE OF ERECTION

The scope of work will comprise of but not limited to the following

- 6.3.1. Loading at storage yard after identification, transporting to site or pre-assembly yard / erection site, unloading at pre-assembly yard / erection site, pre-assembling of equipments wherever required for inspection or checking, erecting the material, aligning, welding, fastening, supporting, grouting, carrying out the necessary non-destructive testing as may be required, carrying out statutory tests arranged, providing services for trial operation, pre-commissioning activities and supply and application of final painting.
- 6.3.2. The contractor should assemble and erect the components as per the drawings issued and No. of components supplied to him will be on the basis of shipping list / completion schedules. Complete pre-assembling of components like fans, mills, etc. is in the scope of contractor.
- 6.3.3. Any fixtures, concrete block supports, steel structures required for temporary supporting for pre-assembly or checking and welding for lifting and handling during pre-assembly and erection shall be arranged by the contractor at his cost.
- 6.3.4. The scope of equipments to be erected under this contract is detailed in Tender Specification. The schedule of weights given wherein is approximate and is meant only to give a general idea to the Contractor about the magnitude of the work involved.
- 6.3.5. All the works such as cleaning, checking, leveling blue matching, aligning, assembling, temporary erection for alignment, opening, dismantling of certain equipments for checking and cleaning, surface preparation, edge preparation, fabrication of tubes and pipes as per general engineering practices at site, cutting, grinding, straightening, chamfering, chipping, and rectification of foundation upto 30 mm, drilling, reaming, scrapping, 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 the same shall be carried out by the contractor as part of the work and at his quoted rates.

- 6.3.6 It shall be the responsibility of the contractor to provide ladders on column for initial works till such time stairways are completed. For this the ladder should not be welded on the column and should be fabricated clamping type ladders. No temporary welding on any structural members is permitted except under special circumstances with the approval of BHEL.
- 6.3.7 No members of the structure / platform should be cut without specific approval of BHEL.
- 6.3.8 Fixing, welding of necessary instrumentation tapping points, to be provided on auxiliaries covered within the scope of this specification will also be the responsibility of the contractor and will be done as per the instructions of BHEL Engineer. The fixing / welding of all the above items will be contractor's responsibility even if the
- i) Product groups under which these items are not specifically indicated in the Tender Specification.
 - ii) Items are supplied by an agency other than BHEL
- 6.3.9 In case of any class of work for which there is no such specification as laid down in the contract such as welding of stainless steel parts, etc. works shall be carried out in accordance with the instructions and requirements of the Engineer at the quoted rates only.
- 6.3.10 All the dampers, valves, lifting equipments, etc. shall be serviced and lubricated to the satisfaction of BHEL Engineer before erecting the same and also during pre-commissioning. The bearings shall be properly cleaned, serviced and lubricated before commissioning at no extra cost. Even after commissioning the equipments, if there are problems in the operation they have be attended to by the contractor during the tenure of the contract. Welding or joining of extension spindle for valves to suit the site conditions and operational facility shall be part of erection work within the quoted rate.

- 6.3.11 In the case of structural members/ducts or piping, in certain cases or in small bore piping for integral cooling water or lubrication system, etc the raw material will be supplied in random lengths and the contractor will have to make up the length / prepared the edges to suit the matching profile weld / bolt connect the joints at no extra cost.
- 6.3.12. Contractor shall carryout chipping and blue-matching of foundation concrete with the packer plates. The packer plates shall be supplied by BHEL. Necessary machining wherever required and blue-matching of packer plates shall be carried out by the contractor within the quoted rates.
- 6.3.13. The contractor shall take all reasonable care to protect the materials and equipment during erection. Preventive painting required to be done on any equipment or part during the course of erection will have to be done by the contractor at no extra cost.
- 6.3.14. Attachment welding of necessary instrumentation tapping points, both for regular measurements and performance testing also included within the scope of this tender and it is the responsibility of the contractor for carrying out the above works as per the instruction of BHEL Engineer, within the quoted rate.
- 6.3.15. Contractor has to arrange required fire proof tarpaulins to protect the machined components / assembled parts drawn from BHEL before and after erection at their cost.
- 6.3.16. Contractor shall provide necessary crew with all items like wire brushes, paint brushes, emery paper, cotton waste, scaffolding materials etc.
- 6.3.17. It is the responsibility of the contractor to do the alignment, checking, etc. if necessary, repeatedly to satisfy BHEL Engineer / Customer Engineers with all the necessary tools and tackles, manpower etc. without any extra cost. The alignment will be completed only when jointly certified so, by the BHEL Engineer & Customer. Also the contractor should ensure that the alignment is not disturbed afterwards.
- 6.3.18. Works such as minor rectification of foundation bolts, reaming of holes, drilling of dowels, matching of bolts and

nuts, making new dowel pin etc. are covered in the scope of work.

- 6.3.19. Certain extra lengths of various tubes/pipes are provided as erection allowance and the same have to be cut/adjusted to suit the site conditions and layouts or certain small lengths may have to be added for adjustments to suit the site conditions. For any mismatch while matching the joints in tubes, the cutting adjusting re welding, addition spool pieces should be done by the contractor to match site conditions without any extra payment.
- 6.3.20. Contractor shall engage separate gangs throughout the contract period, exclusively for proper house keeping of the site. The contractor has to make necessary arrangements for collection and to bring down the scrap from various locations as indicated by BHEL Engineer. The housekeeping must be a routine and continuous activity in the various work fronts. If the contractor does not do this job satisfactory, BHEL will arrange for the same at the cost of the contractor. Periodical payments to the contractor for the work done will be considered only if the customer certifies the housekeeping as satisfactory.
- 6.3.21. It is the responsibility of the contractor to engage his workmen in shifts or on overtime basis for achieving the desired progress and target set by BHEL. The contractor's quoted rate shall include all these contingencies.
- 6.3.22. The contractor is strictly prohibited from using any of the components like angles, channels, hand-rails for any temporary supporting or scaffolding work. In case of such misuse, a sum as determined by BHEL shall be recovered from contractor's bills. Also the contractor will be responsible for the safe custody and proper accounting of all materials issued in connection with the work. If the contractor has drawn materials in excess of design requirements, recoveries will be effected for such excess draws at the rate prescribed by manufacturing units.
- 6.3.23. Layout of small bore piping in lube oil system shall be done as per site requirement. Necessary sketch for routing these lines should be got approved from BHEL by contractor. There is a possibility of slight change in routing the above

pipelines even after completion of erection, which is to be done without any extra cost.

- 6.3.24. Additional platforms of permanent nature for approaching different equipments, as per site requirement, which may not be indicated in drawings, shall be fabricated and installed by the contractor. However the contractor will be paid for this work on accepted tonnage rate for erection. The material required for platform will be supplied by BHEL free of cost.
- 6.3.25. All rotating machineries and equipment shall be cleaned, lubricated, checked for their smooth rotation, if necessary dismantling and refitting before erection. If in the opinion of BHEL Engineer, the equipment is to be checked for clearance, tolerance at any stage of work or during commissioning period, all such works are to be carried out by contractor at his cost.
- 6.3.26. The HT motor bearings shall be blue matched at site and checked for bearing clearance. Scrapping of bearing housing, if required to any extent shall be carried out by the contractor. No extra claim for blue matching of any two surfaces will be entertained. The HT motors will also be checked for air gap and adjustment stator / rotor to magnetic center shall be carried out as part of erection.
- 6.3.27. The fans shall be checked for blade clearance and other vital tolerances. The IGV units shall be serviced. Necessary assistance for balancing of equipment during trial run shall be provided by the contractor.
- 6.3.28. Vital clearance of mill should be checked at site and adjusted if required.
- 6.3.29. All welded joints shall be subjected to acceptance by BHEL Engineer.
- 6.3.30. D.S.L. / equivalent system for hoisting equipments are also to be erected and commissioned including load testing by the contractor within the quoted rates. Required manpower including electricians are to be arranged by the contractor for carrying out commissioning of electrical hoist and load testing of the above electrical hoist. Required loads will be provided by BHEL free of cost.

6.3.31. The contractor has to remove the scrap/debris periodically as and when required and returned to BHEL stores. In case the contractor fails to remove the scrap/debris, the same shall be done by BHEL at the cost of contractor. The temporary structures/items welded to permanent members/pipes are to be cut and removed without any damage. Any damage so to be made good by the contractor at his cost.

6.4. TESTING, PRE-COMMISSIONING, COMMISSIONING & POST COMMISSIONING

(All the works mentioned hereunder shall be carried out within the quoted and accepted rate)

6.4.1. The contractor shall carry out all the required tests on the equipments erected, using contractor's own consumables, labour and scaffoldings.

6.4.2. All tests should be repeated till all the equipments satisfy the requirement / obligation of BHEL to their customer. All the repairs (shop welded or site welded) arising out of the failures during testing shall be done by the contractor as part of the work. No separate payments will be made for these works.

6.4.3. It shall be the responsibility of the contractor to preserve the cleaned surfaces as per BHEL's requirement.

6.4.4. Commissioning of the equipments will involve, trial runs of all the equipments erected, blowing through the lines, flushing of all the lines by air, oil or steam as the case may be, trial run of the equipment and any other works incidental to commissioning. Contractor shall supply skilled technicians / workmen round the clock and materials for all equipment erected by them which shall form part of the scope of work.

6.4.5. In case any defect is noticed during test, trial runs, such as loose components, undue noise or vibration, strain on connected equipment, etc. THE CONTRACTOR SHALL IMMEDIATELY ATTEND TO THESE DEFECTS AND TAKE NECESSARY CORRECTIVE MEASURES. If any readjustment and realignment are necessary the same shall be done as per BHEL Engineer's instructions. If any part of the equipment needs repair, rectification and replacement, the

same shall be done by the contractor at his cost. The parts to be replaced shall be provided by BHEL.

6.4.6. During this period, though the BHEL's / Client's staff will also be associated in the work, the contractor's responsibility will be to arrange for the complete requirement of men and required tools and plants till such time the commissioned units are taken over by the BHEL's Customer.

6.4.7. The commissioning activities will continue till completion of trial run of the units. It shall be the responsibility of the contractor to provide following category of workers in required numbers along with supervisors including necessary equipment, consumables, hand tools, etc. during this period. The rate quoted shall include all these contingencies also.

- a) Millwright Fitters
- b) Structural Welders
- c) Riggers
- d) Unskilled workers
- e) Electricians
- f) Any other category of workers as may be required.

6.4.8. It shall be specifically noted that the above employees of the contractor may have to work round the clock along with BHEL commissioning Engineers and hence overtime payment may be involved. The contractor's quoted rate shall be inclusive of all these factors also.

6.4.9. During commissioning, opening of valves, removal of certain gaskets and re-erection, realigning of rotating and other equipment, attending to leakage, filling of oil to the meters / equipment may arise. The quoted rate shall include the same.

6.4.10. If , during commissioning, any improvement of rectification due to design requirement is involved and if the contractor is asked to carryout the job, the same shall be paid at man day rates / man hour rate as indicated in this tender specification. For this purpose, daily labour report indicating there in nature of work carried out, consumables used, etc. shall be maintained by contractor and get signed

by BHEL Engineer, every day. It is not obligatory on the part of BHEL to get the work done by the contractor. They can employ any other agency, if they so desired at that time.

- 6.4.11 In case, any rework is required because of contractors' faulty erection which is noticed during commissioning, then 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 re - assemble / redo the work without any extra claim.
- 6.4.12 It is the responsibility of the contractor to provide electricians round the clock during pre-commissioning and post-commissioning activities. Further removal and reconnection of power for HT and LT motors are to be carried out as part of commissioning activities. Contractor's quoted rate shall include all these contingencies.
- 6.4.13 All the bearings, gearboxes etc. of the equipments and electrical motors to be erected are provided with protective greases only. Contractor shall arrange as and when required by the BHEL Engineer for cleaning the bearings, gears etc. with kerosene or some other agent, if necessary by dismantling some of the parts of the equipment during erection and shall arrange for re-greasing / lubricating them with the recommended lubricants and for assembling back the dismantled parts. Required cleaning agent (kerosene etc) shall be arranged by the contractor at his cost. The quoted rate shall inclusive of the same.
- 6.4.14 The monthly programme of erection and targets shall be worked out prior to start of erection in consultation with BHEL Engineer. It is the responsibility of the contractor to engage their workmen in shifts or on overtime for achieving the desired progress / targets set.
- 6.4.15 All rotating machineries and equipment shall be cleaned, lubricated, checked for their smooth rotation, if necessary dismantling and refitting before erection by the contractor. If, in the opinion of the BHEL Engineer, the equipment is to be further checked at any stage of the work, necessary facilities for dismantling cleaning, lubricating & refitting shall be provided by the contractor at no extra cost.

- 6.4.16 The instructions of the motor manufacturer regarding storage of the motors and re-conservation must be strictly followed without any deviation.
- 6.4.17 All the motors if necessary shall be stripped open thoroughly serviced with proper care and reassembled properly before erection by the contractor. During servicing, if any deficiency is observed, the same should be taken up with BHEL Engineer at site without any delay.
- 6.4.18 All the shafts of the rotating equipments shall have to be properly aligned to those of matching equipment to perfection, accuracy as required and the equipment shall be free from excessive vibrations so as to avoid overheating of bearings or other conditions, which may tend to shorten the life of the equipment. All bearings shafts and other rotating parts shall be thoroughly cleaned and lubricated as per the recommendations of BHEL Engineers before starting.
- 6.4.19 The contractor shall carry out the trial run of motors including checking the direction of rotation in the uncoupled conditions, checking, aligning and coupling the motor to the respective driven equipment. Before starting the motor, values of insulation (IR value) shall be recorded and if found unnecessary, dry out operation to be carried out by the contractor at no extra cost.

6.5.0 SCOPE OF WORK FINAL PAINTING

- 6.5.1 The scope of work shall also include application of final painting as required and specified for the components of rotating machines & its auxiliaries.
- 6.5.2 The scope of work includes supply and application of paints as per the approved colour code for the components of Rotating machines, its auxiliaries, Hoists, ducting and structures.
- 6.5.3 All exposed metal parts of rotating machines, auxiliaries and structures, hand-railing etc. wherever applicable after installation unless otherwise surface protected, be painted with primer / intermediate finish paint as per the painting schedule and as per the instruction of BHEL / Customer Engineer. After thoroughly cleaning all such parts dust, rust, scales grease, oil and other foreign materials by wire brushing, scrapping and chemical cleaning the same being

inspected and approved by BHEL / Customer engineers. The contractor must obtain permission in writing from BHEL / Customer official, before applying finish paint. The thickness of coat shall be measured and should be informed to BHEL. The instrument for checking the thickness of coat is to be procured by contractor and should be calibrated after periodical intervals.

- 6.5.4 The quality of the finish paint shall be as per the standards of ISI or equivalent and the colour is as approved by BHEL / Customer.
- 6.5.5 The actual color to be applied shall be intimated to the contractor before starting of actual painting work. The quoted rate shall include final painting also. The scope of painting includes application of colour bands, lettering the names of the systems, equipment, marking the directions of flow and other data required by Customer within the quoted rates at the appropriate place as identified by BHEL / Customer.
- 6.5.6 The paints are to be purchased from approved agency of BHEL / customer only. Before procurement of paint the contractor has to obtain the clearance from BHEL Engineer.
- 6.5.7 Finish coat paint, No. of coat and DFT shall be as indicated in the painting specification. The painting specification, which is forming part of this tender shall be strictly followed. Customer/BHEL approved Painting Scheme for Structures, Ducts, Fans and Mills will be issued at site.
- 6.5.8 Contractor has to apply Primer, Intermediate and finish painting on all erected components, which are not insulated. Components with finish painting in shop, BHEL engineer at site will instruct as to whether the shop painting needs to be re-done by the Primer / Intermediate / Finish painting once again depending on the condition of the shop painting after erection and commissioning. Contractor has to comply with such instructions.

6.6.0 TIME SCHEDULE.

- 6.6.1 The contractor shall have to mobilise in all respects within two weeks from the date of issue Fax Letter of Intent to commence the work.

- 6.6.2 The entire work of erection testing and commissioning of equipments as detailed in the Tender Specification for each unit shall be carried out and completed within **Ten (10) months** from the date of actual commencement of erection work at site.
- 6.6.3 During the total period of contract the contractor has to carryout the activities in a phased manner as required by BHEL Engineer and as per the programme of events / targets fixed by BHEL / Customer.
- 6.6.4 The work under this scope of contract is deemed to be completed in all respects only when all the testing and commissioning of all the equipments are completed. The decision of BHEL in this respect shall be final and binding with contractor.
- 6.6.5 During the tenure of contract, if BHEL is not satisfied with the progress of work, BHEL have the right to with draw any portion of work/ balance work and get the same done either directly employing their own men or through other agency at your risk and cost. Contractor shall not be entitled for any compensation whatsoever in this regard.

6.7.0 PAYMENTS FOR WORK COMPLETED

- 6.7.1 The Contractor shall quote separate rates as per the Rate schedule appended. The contractor shall submit his running bills once in a month at the end of each month.
- 6.7.2 BHEL Engineer shall take measurement and certify regarding the actual work executed in the measurement books and bills for erection work.
- 6.7.3 Subject to any deduction which BHEL may be authorized to make under the contract, the contractor shall on the certificate of Engineer at site be entitled for payment as explained hereunder:

6.7.4.0 PAYMENT TERMS

6.7.4.1 FOR ROTATING MACHINE For PG 55, 56, 61, 65 and 67

- i) 15% of the contract rate on pro-rata basis on checking of foundation, chipping and placement of packers.

- ii) 30% of the contract rate on pro-rata basis on placement of equipments on the foundations.
- iii) 30% of the contract rate on pro-rata basis on completion of alignment, welding & grouting.
- iv) 3% of the contract rate on pro-rata basis on PGMA completion as certified by BHEL.
- v) 2% of the contract rate on pro-rata basis on readiness for the trial run.

6.7.4.2 FOR HANDLING EQUIPMENTS

For PG 99

- i) 35% of the contract rate on pro-rata basis on completion of pre-assembly and erection
- ii) 40% of the contract rate on pro-rata basis on completion of alignment and welding.
- iii) 5% of the contract rate on pro-rata basis on PGMA completion as certified by BHEL.

6.7.4.3 Further payment of 15% common for rotating machines, handling equipments for the following events as follows.

- i) 2% of the total contract value after successful completion of trial run of all fans.
- ii) 2% of the total contract value after completion of trial run of all the mills and completion of air flow test.
- iii) 1% of the contract value after completion of commissioning of Electrical hoists including load test of the hoists.
- iv) 2% of the contract value on completion of coal firing in all the coal burners.
- v) 3% of the contract value after completion of final painting.
- vi) 1% of the contract value on cutting and removal of temporary supports, scraps etc. and return the same to BHEL stores.

vii) 1% of the contract value on reconciliation of T & P, materials and consumables etc. with BHEL

viii) 3% of the contract value on submission of final bill and acceptance by BHEL.

6.7.5 Field Quality assurance formats: It is the responsibility of the contractor to collect and fill up the relevant FQA Log Sheets of BHEL and present the same to BHEL after carrying out the necessary checks as per the log sheets and obtaining the signature of BHEL/Customer in token of their acceptance.

6.7.6 The 5% thus remaining of the contract value arrived at the actual quantity erected multiplied by unit rate accepted shall be paid after the guarantee period of 12 months. The guarantee period will commence from the date of completion of trial run of unit or six months after the date of successful completion of trial runs of all equipment, whichever is earlier, provided all erection, testing and commissioning works are completed in all respects. However, this 5% amount can be released on receipt and acceptance of Matching Bank Guarantee (BG) in the prescribed Performa of BHEL valid till completion of such guarantee period.

6.7.7 No levy or payment or charge made or imposed shall be impeached by reasons for any clerical error or demanded or charged.

6.7.8 BHEL at discretion may further split up the above percentage and effect payment to suit the site conditions, cash flow requirements, according to the progress of work.

6.7.9 CONTRACTOR SHALL NOTE THAT THE FINAL BILL BE RELEASED ONLY ON PRODUCTION OF A CERTIFICATE ISSUED BY SITE IN CHARGE THAT THE CONTRACTOR HAS FULFILLED ALL THE CONTRACTUAL / STATUTORY REQUIREMENT.

6.8.0 EXTRA CHARGES FOR MODIFICATION AND RECTIFICATION WORK

- a) BHEL may consider payment for extra works on man day basis for such of those works which require major revamping / rework/rectification/modification which is totally unusual to normal erection or commissioning work which is not due to contractor's faulty erection.
- b) The decision of BHEL in this regard shall be final and binding on the contractor. The contractor may submit his work claim bills (Specifically agreed by BHEL Engineer) along with the labour sheet duly certified by BHEL Engineer at site. But BHEL also got the option to get these work done through other agencies if they so desire.

- 6.8.1 All the extra work, if any, carried out should be done by a separate gang which should be identified prior to start of work for certification, of man hours. Daily labour sheets should be maintained and should be signed by contractor's representative and BHEL Engineer. Signing of the labour sheets does not necessarily mean the acceptance of extra works. Only those works which are identified as not usual to normal erection and certified so by the Project Manager, and accepted by designer/supplier or competent authority only will be considered for payment.
- 6.8.2 The decision of BHEL in this regard shall be final and binding on the contractor.
- 6.8.3 The following man hour rates will be applicable for modification/rectification work.
- 6.8.4 Average single man hour rate including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals, including consumables for carrying out any rework, re-vamping as may arise during the course of erection Rs.40/- man hour.
- 6.8.5 Average single man hour rate including overtime if any, supervision, use of tools and tackles and other site expenses and incidentals excluding consumables for carrying out any rework/revamping as may arise during the course of erection Rs.25/- per man hour.

6.9.0 EXTRA WORK DOES NOT INCLUDE

6.9.1 Nominal dressing of foundations, holes, bases, nuts and bolts, in case of abnormal conditions, this can be mutually discussed before starting of such work.

6.10.0 Extra works are broadly defined as below:

Design changes which will be intimated to the contractor after the start of erection and same refers to dismantling of erected components rectification of components which have been received in damaged conditions during transit, rectification of components wrongly manufactured at work, any other works which do not fall in the scope of this contract.

6.10.1 The decision of BHEL in this regard shall be final and binding on the contractor.

6.11.0 OVER RUN CHARGES

6.11.1 Incase due to reasons not attributable to the contractor, the work gets delayed and completion time gets extended beyond **Ten (10) months** from the date of commencement of the work, the contractor shall be considered for over run compensation (ORC). Incase of ORC arises, the same will apply at **Rs.50,000/- (Rupees Fifty Thousand only)** per month for extension to the completion period beyond **10 (Ten) months** for the total scope of work as stated above duly taking into account the balance work at the end of that period.

6.11.2 The period of overrun will have to be ascertained before the completion of contract period.

6.11.3 During the period of over run, targets will be fixed on month to month basis, which have to be adhered. In case of any shortfall due to the reasons attributable to the contractor, ORC amount will be proportionately reduced.

6.12.0 PRICE VARIATION.

6.12.1 The following P.V.C. is applicable from the scheduled date of bid opening.

$$P1 = \frac{0.75 \times P0 (F1 - F0)}{F0}$$

Applicable even if F1 is lesser than F0 (Price reduction as applicable)

F0 = New all India average consumer price index published by labour Bureau, Simla, Government of India for Industrial workers (Base 2001=100) applicable for the date of bid opening.

F1 = All India average consumer price Index published by labour bureau, Simla, Government of India, for Industrial workers (Base 2001=100) applicable for the months under consideration.

P1 = Increase in the billing amount as per formulae for the particular month of billing

P0 = Billing amount calculated on the accepted contract rate

6.12.2 Price escalation as per above formula will be calculated and paid (excluding payments towards extra works and over run, if any) on month to month basis. BHEL however reserves the right to freeze escalation for that such duration of delays, from time to time which are entirely attributable to the contractor.

6.12.3 With the provision of price escalation as per the above clauses no Claim /compensation on account of any increase whatsoever, (irrespective of whether escalation are steep/unanticipated or not compensated by the above escalation provisions in full towards minimum wages, consumables, electrodes, gases or any other item/reasons) will be payable during the entire period of execution including extended period, if any.

6.13.0 Taxes and Duties

6.13.1 Value Added Tax (VAT) for the works

Price quoted shall be inclusive of VAT except service tax.

Notwithstanding the fact that this is only an erection service contract not involving any transfer of materials whatsoever and not attracting VAT liability, being labour oriented job work, for the purpose of VAT the contractor has to maintain the complete data relating to the expenditure incurred towards wages etc. in respect of the staff/workers employed for this work as also details of purchase of materials like consumables, spares etc., inter alia indicating the name of the supplier, address and VAT Registration No. and VAT paid for the purchases, etc.

The bidder shall get registered with State VAT authorities and the registration certificate shall be forwarded to BHEL immediately after commencement of work. In case the bidder had already registered under respective State VAT, they must quote their registration Number and forward copy of Registration Certificate while submitting this tender. The bidder has to obtain VAT clearance certificate from the concerned authorities, on completion of work and submit along with the final bill as one of the documents for contract closure.

In case the Bidder decides to include any VAT element along with the quoted price, they shall specify (1) The value of VAT included in the quote, (2) the rate of VAT adopted and (3) On what value etc, as additional information, in the price bid. If no VAT element is included in the price, the same shall be indicated in the quote.

The bidder shall quote very competitive price after taking into consideration of above points.

6.13.2 Service Tax

Price quoted shall be exclusive of Service Tax. The service tax as statutorily leviable and payable by the bidder under the provisions of service tax Law / Act shall be paid by BHEL as per bidder claim through various running bills. The bidder shall furnish proof of service tax registration with Central Excise Department specifying the name of services covered under this contract. Registration Certificate should also bear the endorsement for the premises from where the billing

shall be done by the bidder on BHEL for this project. The bidder shall obtain prior consent of BHEL before billing the service tax amount.

6.13.3 Other Taxes & Levies

Any other taxes and duties (except VAT & Service Tax) viz. Entry Tax, Octroi, Seigniorage, Licenses, Deposits, Royalty, Stamp Duty, other charges / levies, etc. prevailing / applicable on the date of opening of technical bids and any variation thereof during the tenure of the contract are in the scope of bidder. In case BHEL is forced to pay any such taxes, BHEL shall have the right to recover the same from the bidder either from running bills or otherwise as deemed fit.

6.13.4 New Levies / Taxes

In case Government imposes any new levy / tax after award of the work during the tenure of the contract, BHEL shall reimburse the same at actual on submission of documentary proof of payment subject to the satisfaction of BHEL that such new levy / tax is applicable to this contract.

6.13.5 Statutory variations

Statutory variations are applicable only in the cases of Value Added Tax and Service Tax. The changes implemented by the Central / State Government in the VAT Act / Service Tax during the tenure of the contract viz. increase / decrease in the rate of taxes, applicability, etc. and its impact on upward revision / downward revision are to be suitably paid/ adjusted from the date of respective variation. The bidder shall give the benefit of downward revision in favour of BHEL. No other variations shall be allowed during the tenure of the contract including extended period, if any.

6.13.6 Direct Tax

BHEL shall not be liable towards Income Tax of whatever nature including variations thereof arising out of this contract as well as tax liability of the bidder and their personnel. Deduction of tax at source at the prevailing rates shall be effected by BHEL before release of payment as a statutory obligation, unless exemption certificate is produced by the bidder. TDS certificate will be issued by BHEL as per the provisions of Income Tax Act.

6.13.7 IMPORTANT CONDITIONS FOR PAYMENT

It may be noted that the first running bill will be released only on production of the following.

1. PF Regn. No.
2. Labour License No.
3. Workmen Insurance Policy No.
4. Un Qualified Acceptance for Detailed L.O.I.
5. Initial 50% Security Deposit.
6. Rs. 100/- Stamp Paper for Preparation of contract agreement

6.13.8 All payments due to the contractor shall be made only through "e-Payment" including return of EMD amount to unsuccessful tenderers. The tenderer has to furnish details of his Bank account as certified by the concerned Banker in the format furnished to enable e-payment.

FROM TO BE FILLED BY VENDORS FOR REGISTERING FOR e-PAYMENT

Details of Bank Account details of Contractor for remittance of e-Payment

1	NAME & ADDRESS OF THE CONTRACTOR / SUPPLIER	:
2	BANK A/C NO.	:
3	TYPE OF A/C (CC / CURRENT)	:
4	NAME OF THE BANK	:
5	NAME OF THE BRANCH	:
6	BRANCH CODE	:
7	BANKER'S ADDRESS (BRANCH)	:
8	MICR NO.	:
9	IFSC CODE	:

Note: THE ABOVE DETAILS ARE TO BE FURNISHED IN THEIR LETTER HEAD BY THE CONTRACTOR / SUPPLIER, DULY ATTESTED BY THEIR BANKERS.

6.14.0 PROVIDENT FUND & MINIMUM WAGES

- 6.14.1 The contractor is required to extend the benefit of Provident Fund to the labour employed by you in connection with this contract as per the Employees Provident Fund and Miscellaneous Provisions Act 1952. For due implementation of the same, you are hereby required to get yourself registered with the Provident Fund authorities for the purpose of reconciliation of PF dues and furnish to us the code number allotted to you by the Provident Fund authorities within one month from the date of issue of this letter of intent. In case you are exempted from such remittance, an attested copy of authority for such exemption is to be furnished. Please note that in the event of your failure to comply with the provisions of said Act, if recoveries therefore are enforced from payments due to us by the customer or paid to statutory authorities by us, such amount will be recovered from payments due to you.
- 6.14.2 The contractor shall ensure the payment of minimum labour wages to the workmen under him as per the rules applicable from time to time in the state.
- 6.14.3 The final bill amount would be released only on production of clearance certificate from PF/ESI and labour authorities as applicable.

6.14.4 OTHER STATUTORY REQUIREMENTS

1. The contractor shall submit a copy of labour licence obtained from the licencing Officer (Form VI) u/r 25 read with u/s 12 of contract labour (R&A) Act 1970 & rules and valid WC Insurance copy or ESI Code (if applicable) and PF code no along with the **first** running bill.
2. The contractor shall submit monthly running bills along with the copies of monthly wages (of the preceding month) u/r 78(1)(a)(1) of contract labour rules, copies of monthly return of PF contribution with remittance challans under Employees Provident Fund Act 1952 and copy of renewed WC Insurance policy or copies of monthly return of ESI contribution with challans under ESI Act 1948 (if applicable) in respect of the workmen engaged by them.
3. The contractor should ensure compliance of Sec 21 of Contract Labour (R&A) Act 1970 regarding responsibility for payment of wages. In case of "Non compliance of Sec

21 or non – payment of wages” to the workmen before the expiry of wage period by the contractor, BHEL will reserve its right to pay the workmen under the orders of appropriate authority at the risk and cost of the Contractor.

4. The contractor shall submit copies of final settlement of disbursal of retrenchment of each workmen under I D Act 1948, copies of Form 6-A (Annual Return of PF Contribution) along with copies of PF Contribution card of each member under PF Act and copies of Monthly return on ESI Contribution-Form 6 under ESI Act 1948(if applicable) to BHEL along with the final bill.
5. Incase of any dispute pending before the Appropriate authority under I D Act 1948, WC Act 1923 or ESI Act 1948 and PF Act 1952, BHEL reserve the right to hold such amounts from the final bills of the contractor which will be released on submission of proof of settlement of issues from the appropriate authority under the Act.
6. Incase of any dispute prolonged /pending before the authority for the reasons not attributable to the contractor, BHEL reserves the right to release the final bill of the contractor on submission of Indemnity bond by the contractor indemnifying BHEL against any claims that may arise at a later date without prejudice to the rights of BHEL.

6.14.5 FINAL SITE INSPECTION & TEST

The employer / owner shall maintain at site a joint protocol for recording actual measurement of work carried out at site, inspection and witnessing of various tests conducted by the contractor. The owner/employer or his authorized agents may inspect various stages of work during the currency of the contract awarded to him. The contractor shall make necessary arrangements for such inspection and carry out the rectification pointed out by the owner/employer without any extra cost to the owner / employer. The contractor shall take this into consideration while quoting his rates for various items/works. No cost whatsoever such duplication of inspection of work be entertained.

SECTION –VII

APPENDIX –I

Rayalaseema TPP - STAGE III - 1X210 MW ROTATING MACHINES

WEIGHT SCHEDULE & APPLICABLE PG MA's			
ROTATING MACHINES--FANS,MILLS,FEEDERS			
S.No	PGMA	DESCRIPTION	WT IN MTS.
		FD, PA, I.D & SEAL AIR FANS	180.0
1	55011	FD FAN FOUNDATION MA	
2	55031	PA FAN FOUNDATION MA	
3	55214	FD FAN	
4	55334	PA FAN	
5	55810	AXIAL FD FAN COUPLING	
6	55830	AXL PAFAN COUPLING	
7	55910	AXL FD FAN ACCESSORY	
8	55911	AXIAL FD FAN SILENCER	
9	55930	AXL PAFAN ACCESSORY	
10	55931	PA FAN SILENCER	
11	56	ID & SEAL AIR FANS	
12	56000	TOOLS & FIXTURE / CONT	
13	56021	ID FAN FOUNDATION MA	
14	56171	SEAL AIR FAN	
15	56226	ID FAN	
16	56670	SEAL AIR FAN MOTOR	
17	56820	ID FAN COUPLING	
18	56870	SEAL AIR FAN COUPLING	
19	56920	ID FAN ACCESSORY	
20	56988	RADIAL FAN COMMG SPA	
21	61	BOWL MILLS & HANLING SYSTEM.	820 .0
22	65736	GRAVIMETRIC FEEDER	36.0
	67	RAW COAL SYSTEM	25.0
23	67272	COAL VALVE - 36 MOT OPR	
24	67276	RAWCOAL GATE-CHAIN36	
25	67283	FDR ISOLATION GATE	
26	67803	FEED PIPE TO MILL	
27	XX	MILL & FAN MOTORS	18.0
28	99(P)	Fan Handling Equipment	18.0
		TOTAL	1097.0

Note:

1. The weight schedule indicated is for reference only.
2. The weight indicated above is approximate and liable to vary due to addition / deletion of PGMA, quality by manufacturing unit. The payment will be made to the contractor for the tonnage actually erected as per the quoted / accepted rate.
3. Addition / deletion of some PG's from the above list is at the discretion of BHEL for which the quoted and BHEL accepted rates shall be payable.
4. The Erection & Dismantling of Temporary supports Pumps, Dummy Plates & Other Misc. Components etc. for Testing , Pre-Commissioning & Commissioning activities are covered in this contract and shall be carried out with in the quoted / accepted tonnage rate.

SECTION – VII

APPENDIX - II

The following minimum Tools & Plants shall be arranged by the contractor for execution of this contract with in the quoted rate.

Sl.No	Description	Qty
1	10 T / 8 T Hydraulic Crane	2 Nos
2	10 T / 20 T tractor trailer	1 No

SECTION – VII

APPENDIX - III

LIST OF TOOLS AND PLANTS TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS

Sl.No	Description	Qty
1	75 T crawler crane on sharable basis	75 T range crane will be provided free of hire charges to the contractor by BHEL in working , on sharable basis, as required and as decided by engineer I/C

NOTE:

1. The above T & P shall be provided to contractor by BHEL / Site in Charge, on need basis.
2. Incase of non-availability of these equipments, due to any reason i.e. unavoidable breakdown, major overhaul or any other reason etc., the contractor shall make arrangement at his own cost to meet the erection targets. No extra claim will be admitted due to non-availability of any of the above equipments. No delay in execution of work shall be accepted on this account.
3. For the crane, the contractor with in the quoted rate, should provide trained crane operator and fuel.
4. Cranes are only for erection purpose and shall not be available for material handling and for transportation purpose for which contractor shall make his own arrangement.
5. The modification of boom length to suit erection requirement shall be carried out by the erection contractor with in the quoted rate.

6. The fuel tank fitted in the crane should not be by – passed by the agency.
7. Any loss / damage of tools by the contractor shall have to be replaced or otherwise cost thereof shall be recovered from the contractor.

Apart from the above, any other tools and plants required for satisfactory completion of the work has to be arranged by the contractor.

SECTION VII
APPENDIX – IV
DECLARATION SHEET

I, _____ hereby certify that, all the information and data furnished by me with regard to this Tender Specification No.BHEL: PSSR: SCT: 1337 are true and complete to the best of my knowledge. I have gone through the specifications, conditions, stipulations in detail and agree to comply which the requirements and intent specifications.

I further certify that I am duly authorized representative of the under mentioned tenderer and a valid power of Attorney to this effect is also enclosed.

TENDERER'S NAME & ADDRESS

**AUTHORISED REPRESENTATIVE'S
SIGNATURE WITH NAME & ADDRESS**

SECTION VII

APPENDIX – V

TENDER SPECIFICATION NO BHEL: PSSR: SCT: 1337

**CERTIFICATE OF DECLARATION FOR CONFIRMING
KNOWLEDGE ON SITE CONDITIONS**

We, _____

here by declare and confirm that we have visited the project site under subject, namely and acquired full knowledge and information about the site conditions. We further confirm that the above information is true and correct and we will not raise any claim of any nature due to lack of knowledge of site conditions.

TENDERER'S NAME AND ADDRESS

Place:

Date :

**SIGNATURE OF AUTHORISED
REPRESENTATIVE WITH NAME &
ADDRESS:**

OFFICE SEAL

SECTION VII
APPENDIX - VI
CHECK LIST

TENDER SPECTFICATION NO, BHEL: PSSR: SCT: 1337

Tenderers are required to fill in the following details:

1. a) Name of the Tenderer with address : YES/NO
- b) Telegraphic/Telex address : YES/NO
- c) Phone (Office/Residence) : YES/NO
- d) Management Structure of firm (Pvt. Ltd/
Public Ltd./Partnership/Sole
Proprietorship) Documentary proof
For the same enclosed) : YES/NO
2. Whether EMD submitted as per
Tender specifications terms and
Conditions : YES/NO
3. Validity of offer (offer shall be
kept open for acceptance for
minimum six months) : YES/NO
4. Whether tenderer visited the
erection site and acquainted with
the site conditions before quoting : YES/NO

SIGNATURE OF THE TENDERER

5. Whether the following details are furnished : YES/NO
- a) Previous Experience : YES/NO
 - b) Present assignments : YES/NO
 - c) organization chart of the company : YES/NO
 - d) Company financial status : YES/NO
 - e) Incase of company, proof of Registration of the company : YES/NO
 - f) Memorandum & Articles of Association of company/copy of Partnership deed : YES/NO
 - g) Profit & Loss account for the Last 3 years : YES/NO
 - h) Audited Balance sheet for the Last 3 years : YES/NO
 - i) Income Tax clearance certificate (latest) : YES/NO
 - j) Solvency Certificate from a Nationalised Bank : YES/NO
 - k) Power of Attorney of the person Signing the tender duly attested By a Notary Public : YES/NO

SIGNATURE OF THE TENDERER

- l) Manpower organization chart
With deployment plan at site
For posting of Engineers/super
Visitors and workers/labourers : YES/NO
For satisfactory completion of
Work under this specification
6. Whether the Tenderer is conversant
with local labour laws & conditions : YES/NO
7. Whether the tenderer is aware of
all safety rules and codes : YES/NO
8. Whether the Declaration sheet (as
per appendix) enclosed : YES/NO
9. Time required for mobilization of
of site organization and start of work : YES/NO
10. Whether list of tools and Plants
available with the contractor and
proposed to be deployed for this
work enclosed : YES/NO
11. Whether all the Pages are read
understood and signed. : YES/NO
12. Deviations, if any Pointed out : YES/NO
13. Whether PF exemption No. is
allotted by RPFC of your area if
so, indicate number : YES/NO

SIGNATURE OF THE TENDERER