

e-TENDER SPECIFICATION

No. BHE/PW/PUR/RGMT-COM-MOD U7/2365

| SI No | E-Tender Specification Number | Unit Number & Project |
|-------|---------------------------------|---------------------------------------|
| 1 | BHE/PW/PUR/RGMT-COM-MOD U7/2365 | Unit 7 (500MW) of NTPC Ramagundam TPS |

Material Receipt, Unloading, Storage, record keeping, Preservation, Handling and Conservation of the Equipment at site, Erection, Commissioning & Testing of Combustion Modification System to reduce NOx level at Unit 7 (500MW) of NTPC Ramagundam TPS

TECHNICAL BID- VOLUME- I

TENDER SPECIFICATIONS CONSISTS OF:

- Notice Inviting Tender
- Volume-IA : Technical Conditions of Contract
- Volume-IB : Special conditions of Contract
- Volume-IC : General conditions of Contract
- Volume-ID : Forms & Procedures
- Volume-IE : Guideline for selection of NDE and Heat Treatment Agencies at site



Bharat Heavy Electricals Limited
(A Government of India Undertaking)
Power Sector - Western Region
345-Kingsway, Nagpur-440001

Registered Office: BHEL House, Siri Fort, New Delhi – 110 049, India
Website: www.bhel.com

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| Volume No | Description | Hosted in website bhel.com (Briefly) and detailed in BHEL e-Procurement Portal as files titled |
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| NIL | Tender Specification Issue Details | (Part of <u>Vol-IA-2365</u>) |
| NIL | Notice Inviting Tender | (Part of <u>Vol-IA-2365</u>) |
| I-A | Technical Conditions of Contract | Vol-I-A-2365 |
| I-B | Special Conditions of Contract | Vol-I-BCD-2365 |
| I-C | General Conditions of Contract | (Part of Vol-I-BCD-2365) |
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e-Tender Specification Issue Details

NO: BHE/PW/PUR/RGMT-COM-MOD U7/2365

**Material Receipt, Unloading, Storage, record keeping, Preservation, Handling and
Conservation of the Equipment at site, Erection, Commissioning & Testing of
Combustion Modification System to reduce NOx level at Unit 7 (500MW) of NTPC
Ramagundam TPS**

EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR Refer Notice Inviting Tender
TENDER SUBMISSION .

THESE TENDER SPECIFICATION DOCUMENTS CONTAINING VOLUME-I AND VOLUME- II ARE ISSUED TO:

M/s.

.....

PLEASE NOTE:

THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date:

2365

NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



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Date: 06/02/2021

NOTICE INVITING E-TENDER (NIT)

**NOTE: BIDDER MAY DOWNLOAD/ UPLOAD THE TENDER/ OFFER FROM/ON
BHEL E-PROCUREMENT PORTAL → <https://eprocurebhel.co.in>**

To,

Dear Sir/Madam,

Sub : NOTICE INVITING E-TENDER

Sealed offers in two part bid system (National competitive bidding (NCB) or International Competitive Bidding (ICB) are invited from reputed & experienced bidders (meeting [PRE QUALIFICATION CRITERIA](#) as mentioned in Annexure-1) for the subject job by the undersigned on the behalf of BHARAT HEAVY ELECTRICALS LIMITED as per the tender document. Following points relevant to the tender may please be noted and complied with.

1.0 Salient Features of NIT

| S No. | ISSUE | DESCRIPTION | |
|--------------|--|--|-------------------|
| i | E-TENDER NUMBER | BHE/PW/PUR/RGMT-COM-MOD U7/2365 | |
| ii | Broad Scope of job | Material Receipt, Unloading, Storage, record keeping, Preservation, Handling and Conservation of the Equipment at site, Erection, Commissioning & Testing of Combustion Modification System to reduce NOx level at Unit 7 (500MW) of NTPC Ramagundam TPS | |
| iii | DETAILS OF TENDER DOCUMENT | | |
| A | Volume-IA | <i>Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc</i> | <i>Applicable</i> |
| B | Volume-IB | <i>Special Conditions of Contract (SCC)</i> | <i>Applicable</i> |
| C | Volume-IC | <i>General Conditions of Contract (GCC)</i> | <i>Applicable</i> |
| D | Volume-ID | <i>Forms and Procedures</i> | <i>Applicable</i> |
| E | Volume-IE | <i>Guideline for selection of NDE and Heat Treatment Agencies at site</i> | <i>Applicable</i> |
| F | Volume-II | <i>Price Bid as specified in E-Procurement Portal</i> | <i>Applicable</i> |
| iv | Issue of Tender Documents | Tender documents will be available for downloading from BHEL website (www.bhel.com) or e-procurement portal (https://eprocurebhel.co.in) as per schedule below: Start :06/02/2021, Time :12:00 Closes : 01/03/2021, Time : 11:00 Brief information of the tenders shall also be available at central public procurement portal. (https://eprocure.gov.in/epublish/app) | <i>Applicable</i> |
| v | DUE DATE & TIME OF OFFER SUBMISSION | Date: 01/03/2021, Time: 12.00 Hrs • Place on E-Tender Portal https://eprocurebhel.co.in | <i>Applicable</i> |

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| S No. | ISSUE | DESCRIPTION | |
|-------|--|---|----------------|
| vi | OPENING OF TENDER (Techno-Commercial Bid) | <p>Date: 01/03/2021, Time: 16.00 Hrs</p> <p>Notes:</p> <p>(1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day.</p> <p>(2) Bidder may depute representative to witness the opening of tender. For e-Tender, Bidder may witness the opening of tender through e-Procurement portal only.</p> | Applicable |
| vii | EMD AMOUNT | <p>₹ 1,79,000/- (Rupees One Lakh Seventy Nine Thousand Only).</p> <p>Important Note: Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NIT/GCC.</p> | Applicable |
| viii | COST OF TENDER | <p>Free</p> <p>One day before due date of offer submission. Along with soft version also, addressing to undersigned & to others as per contact address given below:</p> <ol style="list-style-type: none"> 1) Name: P R Chiwarkar Designation:AGM Dept: Purchase Address: Floor no. 5 & 6,Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Phone: Landline: +91-712-2858-633 Email :prchiwarkar@bhel.in Fax:+91-712-2858600 2) Name: Viveka Nand Jha Designation: Dy Manager Dept: Purchase Address: Floor no. 5 & 6,Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Phone: Land Line: +91-712-2858713 Email :vivekjha@bhel.in Fax:+91-712-2858600 | Applicable |
| x | SCHEDULE OF Pre Bid Discussion (PBD) | | Not Applicable |
| xi | INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM) | | Not Applicable |

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| S No. | ISSUE | DESCRIPTION |
|-------|----------------|---|
| xii | Latest updates | Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendum), Central Public Procurement portal (https://eprocure.gov.in/epublish/app) & on e-tender portal https://eprocurebhel.co.in and not in the newspapers. Bidders to keep themselves updated with all such information. |

2.0 The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, duly signed digitally using Class III DSC & uploaded in E-Procurement Portal, as part of offer. **Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.**

3.0 Not Used

4.0 Unless specifically stated otherwise, bidder shall deposit EMD as per clause 1.9 of General Conditions of Contract.

For Electronic Fund Transfer the details are as below:-

| | |
|--|--|
| NAME OF THE BENEFICIARY | BHARAT HEAVY ELECTRICALS LTD |
| ADDRESS OF THE COMPANY | SHREE MOHINI COMPLEX 345, KINGSWAY, NAGPUR |
| NAME OF BANK | STATE BANK OF INDIA |
| NAME OF BANK BRANCH AND BRANCH CODE | SBI, KINGSWAY BRANCH, BRANCH CODE-00432 |
| CITY | NAGPUR |
| ACCOUNT NUMBER | 31380025872 |
| ACCOUNT TYPE | CURRENT A/C |
| IFSC CODE OF THE BENEFICIARY BANK BRANCH | SBIN0000432 |
| MICR CODE OF THE BANK BRANCH | 440002002 |

(Note :- In case of E-Tenders, proof of remittance of EMD should be uploaded in the E-Procurement Portal and originals, as applicable, shall be sent to the officer inviting tender within a reasonable time, failing which the offer is liable to be rejected.

5.0 Procedure for Submission of Tenders:

This is an E-tender floated online through our E-Procurement Site (<https://eprocurebhel.co.in>). The bidder should respond by submitting their offer online only in our e-Procurement platform at (<https://eprocurebhel.co.in>). Offers are invited in two-parts only.

Documents Comprising the e-Tender

The tender shall be submitted online ONLY EXCEPT EMD (in physical form) as mentioned below:

a. Technical Tender (UN priced Tender)

All Technical details (e.g. Eligibility Criteria requested (as mentioned below)) should be attached in e-tendering module, failing which the tender stands invalid & may be

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REJECTED. Bidders shall furnish the following information along with technical tender (preferably in pdf format):

- i. Earnest Money Deposit (EMD) furnished in accordance with NIT Clause 4.0. Alternatively, ~~documentary evidence for claiming exemption as per clause 29 of NIT.~~
- ii. Technical Bid (without indicating any prices).

b. Price Bid:

- i. Prices are to be quoted in the attached Price Bid format online on e-tender portal.
- ii. The price should be quoted for the accounting unit indicated in the e-tender document.
- iii. Note: It is the responsibility of tenderer to go through the Tender document to ensure furnishing all required documents in addition to above, if any. Any deviation would result in REJECTION of tender and would not be considered at a later stage at any cost by BHEL.
- iv. A person signing (manually or digitally) the tender form or any documents forming part of the contract on behalf of another shall be deemed to warrantee that he has authority to bind such other persons and if, on enquiry, it appears that the persons so signing had no authority to do so, the purchaser may, without prejudice to other civil and criminal remedies, cancel the contract and hold the signatory liable for all cost and damages.
- v. A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.

DO NOT'S

Bidders are requested NOT to submit the hard copy of the Bid. In case offer is sent through hard copy/fax/telex/cable/electronically in place of e-tender, the same shall not be considered. **Also, uploading of the price bid in prequalification bid or technical bid may RESULT IN REJECTION of the tender.**

Digital Signing of e-Tender

Tenders shall be uploaded with all relevant PDF/zip format. The relevant tender documents should be uploaded by an authorized person having Class 3- SHA2- 2048 BIT-SIGNING & ENCRYPTION digital signature certificate (DSC).

The Requirement:

- 1. A PC with Internet connectivity &
- 2. DSC (Digital Signature Certificate) (**Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION**)

BHEL has finalized the e-procurement service Provider:-

NIC PORTAL (<https://eprocurebhel.co.in>)

For E-PROCUREMENT ASSISTANCE & TRAINING, NIC PORTAL HELPDESK CONTACTS AS PER FOLLOWING:

For any technical related queries, please call at 24 x 7 Help Desk Number

0120-4001 002

0120-4200 462

0120-4001 005

0120-6277 787

1. Peter Raj, NIC, Ph: 9942069052

Email Support: support-eproc@nic.in

Other details/update yourself from : <https://eprocurebhel.co.in>

The process of utilizing e-procurement necessitates usage of **DSC (Digital Signature Certificate) (Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION)** and you are requested to procure the same immediately, if not presently available with you. Please note that only with DSC, you will be able to login the e-procurement secured site and take part in the tendering process.

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The contact details of the DSC certifying authority:-
please refer <http://www.mca.gov.in/> →MCA SERVICES → DSC SERVICES

Vendors are requested to go through seller manual available on <https://eprocurebhel.co.in>.

Procedure for Submission of Tenders (To be used in case of Paper bid only): The Tenderers must submit their Tenders to Officer inviting Tender, as detailed below:

- ~~PART-I consisting of 'PART-I A (Techno Commercial Bid)' & 'PART-I B (EMD)' in two separate sealed and superscribed envelopes (ENVELOPE I & ENVELOPE II)~~
- ~~PART-II (Price Bid) in sealed and superscribed envelope (ENVELOPE III)~~
- ~~One set of tender documents shall be retained by the bidder for their reference~~

~~6.0 The contents for ENVELOPES and the superscription for each sealed cover/Envelope are as given below. (All pages to be signed and stamped) (To be used in case of Paper bid only):~~

| Sl. no. | Description | Remarks |
|----------------|--|---------|
| Part IA | | |
| | ENVELOPE I superscribed as:- PART-I (TECHNO COMMERCIAL BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: CONTAINING THE FOLLOWING:- i. Covering letter/Offer forwarding letter of Tenderer. ii. Duly filled in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above. Note: a. In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained. b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender iii. Supporting documents/ annexure/ schedules/ drawing etc. as required in line with Pre Qualification criteria. It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact ph. no, FAX no, etc. | |
| | | |
| | | |

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| | | |
|-------|---|---------------|
| iv. | All Amendments/Correspondences/Corrigenda/Clarifications/Changes/Errata etc. pertinent to this NIT. | |
| v. | Integrity Pact Agreement (Duly signed by the authorized signatory) | If applicable |
| vi. | Duly filled-in annexures, formats etc. as required under this Tender Specification/NIT | |
| vii. | Notice inviting Tender (NIT) | |
| viii. | Volume - I A : <u>Technical Conditions of Contract (TCC)</u> consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc. | |
| ix. | Volume - I B : <u>Special Conditions of Contract (SCC)</u> | |
| x. | Volume - I C : <u>General Conditions of Contract (GCC)</u> | |
| xi. | Volume - I D : <u>Forms & Procedures</u> | |
| xii. | Volume - II (UNPRICED) without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item | |
| xiii. | Any other details preferred by bidder with proper indexing. | |

| PART-I B | |
|-----------------|---|
| | <u>ENVELOPE - II superscribed as:-</u> PART-I (EMD) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: |
| | <u>CONTAINING THE FOLLOWING:-</u> Earnest Money Deposit (EMD) in the form as indicated in this Tender |

| PART-II | |
|----------------|---|
| | <u>PRICE BID</u> consisting of the following shall be enclosed |
| | <u>ENVELOPE-III</u> superscribed as: PART-II (PRICE BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: |
| | <u>CONTAINING THE FOLLOWING</u> |
| i | Covering letter/Offer forwarding letter of Tenderer enclosed in Part-I |
| ii | Volume II - PRICE BID (Duly Filled in Schedule of Rates - rate/price to be entered in words as well as figures) |

| OUTER COVER | |
|--------------------|--|
| | <u>ENVELOPE-IV (MAIN ENVELOPE / OUTER ENVELOPE)</u> superscribed as: |

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| | | |
|---|--|--|
| | TECHNO-COMMERCIAL BID, PRICE BID & EMD TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION: | |
| ‡ | CONTAINING THE FOLLOWING: o Envelopes I o Envelopes II o Envelopes III | |

- SPECIAL NOTE: All documents/ annexures to be submitted should be uploaded in respective places in the E-Tender portal as per the list mentioned given in this NIT. BHEL shall not be responsible for any in-complete documents.**

7.0 Deviation with respect to tender clauses and additional clauses/suggestions in Techno-commercial bid / Price bid shall NOT be considered by BHEL. Bidders are requested to positively comply with the same.

8.0 BHEL reserves the right to accept or reject any or all Offers without assigning any reasons thereof. BHEL also reserves the right to cancel the Tender wholly or partly without assigning any reason thereof. Also BHEL shall not entertain any correspondence from bidders in this matter (except for the refund of EMD).

9.0 Assessment of Capacity of Bidders:

Bidder's capacity for executing the job under tender shall be assessed 'LOAD' wise and 'PERFORMANCE' wise as per the following:

- 1 **LOAD:** Load takes into consideration ALL the contracts of the Bidder under execution with BHEL Regions, irrespective of whether they are similar to the tendered scope or not. The cut off month for reckoning 'Load' shall be the 3rd Month preceding the month corresponding to the 'latest date of bid submission', in the following manner -
(Note: For example, if latest bid submission is in Jan 2017, then the 'load' shall be calculated up to and inclusive of Oct 2016)

Total number of Packages in hand = Load (P)

Where 'P' is the sum of all unit wise identified packages (refer table-1) under execution with BHEL Regions as on the cut off month defined above, including packages yet to be commenced, excepting packages which are on Long Hold.

- 2 **PERFORMANCE:** Here 'Monthly Performance' of the bidder for all the packages (under execution/ executed during the 'Period of Assessment' in all Power Sector Regions of BHEL) SIMILAR to the packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding and including the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the 3rd Month preceding the month corresponding to 'latest date of bid submission', in the following manner:

(Note: For example, if 'latest date of bid submission' is in Jan 2017, then the 'performance' shall be assessed for a 6 months' period up to and inclusive of Oct

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2016 (i.e. from May 2016 to Oct 2016), for all the unit wise identified packages (refer Table I))

i). Calculation of Overall 'Performance Rating' for 'Similar Package/Packages' for the tendered scope under execution at Power Sector Regions for the 'Period of Assessment':

This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for all the similar Package/packages', divided by the total number of Package months for which evaluation should have been done, as per procedure below:

- a) $P_1, P_2, P_3, P_4, P_5, \dots, P_N$ etc. be the packages (under execution/ executed during the 'Period of Assessment' in all Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = P_T (i.e. $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$)
- b) Number of Months 'T₁' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package P₁. Similarly T₂ for package P₂, T₃ for package P₃, etc. for the tendered scope. Now calculate cumulative total months 'T_T' for total similar Packages 'P_T' for all Regions (i.e. $T_T = T_1 + T_2 + T_3 + T_4 + \dots + T_N$)
- c) Sum 'S₁' of 'Monthly Performance Evaluation' Scores (S₁₋₁, S₁₋₂, S₁₋₃, S₁₋₄, S₁₋₅.... S_{1-T₁}) for similar package P₁, for the 'period of assessment' 'T₁' (i.e. $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots + S_{1-T_1}$). Similarly, S₂ for package P₂ for period T₂, S₃ for package P₃ for period T₃ etc. for the tendered scope for all Regions. Now calculate cumulative sum 'S_T' of 'Monthly Performance Evaluation' Scores for total similar Packages 'P_T' for all Regions (i.e. 'S_T' = S₁ + S₂ + S₃ + S₄ + S₅ + S_N)
- d) **Overall Performance Rating 'R_{BHEL}' for the Similar Package/Packages** (under execution/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL

Aggregate of Performance scores for all similar packages in all the Regions

= -----

---Aggregate of months for each of the similar packages for which performance

should have been evaluated in all the Regions

S_T

= -----

T_T

e) **Bidders to note that the risk of non-evaluation or non-availability of the 'Monthly Performance Evaluation' reports as per relevant formats is to be borne by the Bidder.**

f) **Table showing methodology for calculating 'a', 'b' and 'c' above**

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| Sl. No. | Item Description | Details for all Regions | | | | | | | Total |
|----------------|--|--|--|--|--|--|--------|--|---|
| | | (iii) | (iv) | (v) | (vi) | (vii) | (viii) | (ix) | |
| 1 | Similar Packages for all Regions → (under execution/ executed during period of assessment) | P ₁ | P ₂ | P ₃ | P ₄ | P ₅ | ... | P _N | Total No. of similar packages for all Regions = P _T i.e. Sum (Σ) of columns (iii) to (ix) |
| 2 | Number of Months for which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment' for corresponding Similar Packages (as in row 1) | T ₁ | T ₂ | T ₃ | T ₄ | T ₅ | ... | T _N | Sum (Σ) of columns (iii) to (ix) = T _T |
| 3 | Monthly performance scores for the corresponding period (as in Row 2) | S ₁₋₁ , S ₁₋₂ , S ₁₋₃ , S ₁₋₄ , ... S _{1-T1} | S ₂₋₁ , S ₂₋₂ , S ₂₋₃ , S ₂₋₄ , ... S _{2-T2} | S ₃₋₁ , S ₃₋₂ , S ₃₋₃ , S ₃₋₄ , ... S _{3-T3} | S ₄₋₁ , S ₄₋₂ , S ₄₋₃ , S ₄₋₄ , ... S _{4-T4} | S ₅₋₁ , S ₅₋₂ , S ₅₋₃ , S ₅₋₄ , ... S _{5-T5} | .. | S _{N-1} , S _{N-2} , S _{N-3} , S _{N-4} , ... S _{N-TN} | ----- |
| 4 | Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3) | S ₁ | S ₂ | S ₃ | S ₄ | S ₅ | ... | S _N | Sum (Σ) of columns (iii) to (ix) = S _T |

ii). Calculation of Overall 'Performance Rating' (R_{BHEL}) in case at least 6 evaluation scores for 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during the 'Period of Assessment'.

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This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for ALL the packages, divided by the total number of Package months for which evaluation should have been done. 'RBHEL' shall be calculated subject to availability of 'performance scores' for at least 6 'package months' in the order of precedence below:

- a) 'Period of Assessment' i.e. 6 months preceding and including the cut-off month
- b) 12 months preceding and including the cut-off month
- c) 24 months preceding and including the cut-off month

In case, RBHEL cannot be calculated as above, then Bidder shall be treated as 'NEW VENDOR'. Further eligibility and qualification of this bidder shall be as per definition of 'NEW VENDOR' described in 'Explanatory Notes'.

iii). Factor "L" assigned based on Overall Performance Rating (RBHEL) at Power Sector Regions:

| Sl. no. | Overall Performance Rating (RBHEL) | Corresponding value of 'L' |
|---------|------------------------------------|----------------------------|
| 1 | =60 | NA |
| 2 | > 60 and \leq 65 | 0.4 |
| 3 | > 65 and \leq 70 | 0.35 |
| 4 | > 70 and \leq 75 | 0.25 |
| 5 | > 75 and $<$ 80 | 0.2 |
| 6 | \geq 80 | NA |

3 'Assessment of Capacity of Bidder':

'Assessment of Capacity of Bidder' is based on the Maximum number of packages for which a vendor is eligible, considering the performance scores of similar packages, as below:

Max number of packages $P_{Max} = (RBHEL - 60)$ divided by corresponding value of 'L', i.e. $(RBHEL - 60)/L$

Note:

- i). In case the value of P_{Max} results in a fraction, the value of P_{Max} is to be rounded off to next whole number
- ii). For $RBHEL = 60$, $P_{Max} = 1'$
- iii). For $RBHEL \geq 80$, there will be no upper limit on P_{Max}

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if $P \leq P_{Max}$

(Where P is calculated as per clause 'I' above)

4 Explanatory note:

- i). Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or C&I etc. at the individual level irrespective of rating of Plant and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, C&I, Civil, Structure etc. is considered individual level of package. For example, in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e. the 'identified packages as per Table-1 below), the 'PERFORMANCE' part against sl.no. II above, needs to be evaluated considering all the identified packages

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(i.e. Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above.

ii). Identified Packages (Unit wise)

Table-1

| Civil | Electrical and C&I | Mechanical |
|---|---|---|
| i). Enabling works ii). Pile and Pile Caps iii). Civil Works including foundations iv). Structural Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil) | i). Electrical ii). C&I iii). Others (Elect. and C&I) | i). Boiler & Aux (All types including CW Piping if applicable) ii). Power Cycle Piping/Critical Piping iii). ESP iv). LP Piping v). Steam Turbine Generator set & Aux vi). Gas Turbine Generator set & Aux vii). Hydro Turbine Generator set & Aux viii). Turbo Blower (including Steam Turbine) ix). Material Management x). FGD xi). ACC xii). Others (Mechanical) |

iii). Bidders who have not been evaluated for at least six package months in the last 24 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions, shall be considered "NEW VENDOR".

A 'NEW VENDOR' shall be considered qualified subject to satisfying all other tender conditions.

A 'NEW VENDOR' if awarded a job (of package/packages identified under this clause) shall be tagged as "FIRST TIMER" on the date of first LOI from BHEL.

The "FIRST TIMER" tag shall remain till completion of all the contracts against which vendor has been tagged as First Timer or availability of 6 evaluation scores within last 24 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions.

A Bidder shall not be eligible for the next job as long as the Bidder is tagged as "FIRST TIMER" excepting for the Tenders which have been opened on or before the date of the bidder being tagged as 'FIRST TIMER'.

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After removal of 'FIRST TIMER' tag, the Bidder shall be considered 'QUALIFIED' for the future tenders subject to satisfying all other tender conditions including 'Assessment of Capacity of Bidders'.

iv). Consequent upon applying the criteria of 'Assessment of Capacity of Bidders' detailed above on all the bidders qualified against Technical and Financial Qualification criteria, if the number of qualified bidders reduces to less than minimum no. of bidders required for conducting RA as per extant RA Guidelines, then for further processing of the Tender, BHEL at its discretion reserves the right to also consider the bidders who are "not qualified" as per criteria of 'Assessment of Capacity of Bidders' and for this, procedure described in following three options shall be followed:

- a) All the bidders having Overall Performance Rating ('RBHEL') ≥ 60 shall be considered qualified against criteria of 'Assessment of Capacity of Bidders'.
- b) If even after using option "a", the number of qualified bidders remains less than minimum no. of bidders required for conducting RA as per extant RA Guidelines, then in addition to bidders considered as per option "a", "First timer" bidders having average of available performance scores ≥ 60 upto and including the Cut Off month shall also be considered qualified against criteria of 'Assessment of Capacity of Bidders'.
- c) If even after using option "a" and "b", the number of qualified bidders remains less than minimum no. of bidders required for conducting RA as per extant RA Guidelines, then in addition to bidders considered as per option "a" and "b", "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall also be considered qualified against criteria of 'Assessment of Capacity of Bidders'.

Note:- In case, the number of bidders qualified against Technical and Financial Qualification criteria itself is less than minimum no. of bidders required for conducting RA as per extant RA Guidelines, then all bidders (a)- having Overall Performance Rating ('RBHEL') ≥ 60 , (b)- "First timer" bidders having average of available performance scores ≥ 60 upto and including the Cut Off month, (c)- "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall be considered qualified against criteria of 'Assessment of Capacity of Bidders' for further processing of tender.

v). 'Under execution' shall mean works in progress as per the following:

- a. Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages
- b. Up to Steam Blowing in case of Boiler/ESP/Piping Packages
- c. Up to Synchronization in all Balance Packages

Note: BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (a), (b) and (c) above, depending upon the balance scope of work to be completed.

vi). Contractor shall provide the latest contact details i.e. mail-ID and Correspondence Address to SCT Department, so that same can be entered in the Contractor Performance Evaluation System, and in case of any change/discrepancy same shall be

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informed immediately. Login Details for viewing scores in Contractor Performance Evaluation System shall be provided to the Contractor by SCT Department.

vii). Performance Evaluation for Activity Month shall be completed in Evaluation Month (i.e. month next to Activity Month) or in rare cases in Post Evaluation Month (i.e. month next to Evaluation Month) after approval from Competent Authority. In case scores are not acceptable, Contractor can submit Review Request to GM Site/ GM Project latest by 25th of Evaluation Month or 3 days after approval of score, whichever is later. However, acceptance/rejection of 'Review Request' solely depends on the discretion of GM Site/GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.

viii). Project on Hold due to reasons not attributable to bidder -

- a. **Short hold:** Evaluation shall not be applicable for this period, however Loading will be considered.
- b. **Long hold:** Short hold for continuous six months and beyond or hold on account of Force Majeure shall be considered as Long Hold. Evaluation as well as Loading shall not be considered for this period.

ix). Performance evaluation as specified above in this clause is applicable to Prime bidder and Consortium partner (or Technical tie up partner) for their respective scope of work.

10.0 Since the job shall be executed at site, bidders must visit site/ work area and study the job content, facilities available, availability of materials, prevailing site conditions including law & order situation, applicable wage structure, wage rules, etc. before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.

11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail and/or through e-procurement portal, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.

13.0 In the event of any conflict between requirement of any clause of this specification/documents/drawings/data sheets etc. or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.

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14.0 Unless specifically mentioned otherwise, bidder's quoted price shall be deemed to be in compliance with tender including PBD.

15.0 ~~Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), if applicable, along with techno commercial bid. This pact shall be considered as a preliminary qualification for further participation. The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.~~

"Integrity Pact (IP)"

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

| Sl. No. | IEM | Email |
|---------|--|--|
| 1. | Shri Arun Chandra Verma, IPS (Retd.) | aeverma1@gmail.com |
| 2. | Shri Virendra Bahadur Singh, IPS (Retd.) | vbsinghips@gmail.com |

~~(b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno commercial bid (Part I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.~~

~~(c) Please refer Section 8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.~~

Note:

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

Details of contact person(s):

Name: (1) P R Chiwarkar / AGM (Purchase) 2) VivekaNand Jha / Dy Manager (Purchase)

Dept.: Purchase Department

Address: Floor No. 5 & 6, Shreemohini Complex, 345 Kingsway, Nagpur - 440001

Phone: (LL/ Mobile) (1) 0712-2858600 0712-2858600

Email: prchiwarkar@bhel.in vivekjha@bhel.in

Fax: 0712 2858699

16.0 The Bidder has to satisfy the Pre-Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre-Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.

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17.0 In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorized representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.

18.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.

19.0 **Reverse Auction:** Applicable. "BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com on "supplier registration page".) for this tender. RA shall be conducted among all the techno-commercially qualified bidders.

Price Bids of all the techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking.

20.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.

21.0 In case the bidder is an "Indian Agent of Foreign Principals", 'Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.

22.0 The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.

23.0 Consortium Bidding (or Technical Tie up) shall be allowed only if specified in Pre-Qualifying Requirement (PQR) criteria, and in such a case the following shall be complied with:

23.1 Prime Bidder and Consortium Partner or partners are required to enter into a consortium agreement for the said contract with a validity period of six months initially. In case bidder becomes L1, Consortium Agreement valid till contractual completion period shall be submitted to BHEL before signing the contract. Consortium Agreement shall be kept valid till scope of work awarded to consortium partner(s) as per contract is completed.

23.2 'Standalone' bidder cannot become a '**Prime Bidder**' or a '**Consortium bidder**' or '**Technical Tie up bidder**' in a consortium (or Technical Tie up) bidding. Prime bidder shall neither be a consortium partner to other prime bidder nor take any other consortium partners. However, consortium partner may enter into consortium agreement with other prime bidders. In case of non-compliance, consortium bids of such Prime bidders will be rejected.

23.3 Number of partners for a Consortium Bidding (or Technical Tie up) including Prime Bidder shall be NOT more than 3 (three).

23.4 Prime Bidder shall be as specified in the Pre-Qualification Requirement, else the bidder who has the major share of work.

23.5 In order to be qualified for the tender, Prime Bidder and Consortium partner or partners shall satisfy (i) the Technical 'Pre Qualifying Requirements' specified for the respective package, (ii) "Assessment of Capacity of Bidder" as specified in clause 9.0.

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23.6 Prime Bidder shall comply with additional 'Technical' criteria of PQR as defined in 'Explanatory Notes for the PQR'.

23.7 Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified

23.8 In case customer approval is required, then Prime Bidder and Consortium Partner or partners shall have to be individually approved by Customer for being considered for the tender.

23.9 Prime Bidder shall be responsible for the overall execution of the contract.

23.10 In case of award of job, Performance shall be evaluated for Prime Bidder and Consortium Partner or partners for their respective scope of work(s) as per prescribed formats.

23.11 In case the Consortium partner or partners back out, their SDs shall be encashed by BHEL and BHEL shall take necessary action as per extant guidelines. In such a case, other consortium partner or partners meeting the PQR have to be engaged by the Prime Bidder, and if not, the respective work will be withdrawn and executed on risk and cost basis of the Prime Bidder. The new consortium partner or partners shall submit fresh SDs as applicable.

23.12 In case Prime Bidder withdraws or insolvency / liquidation / winding up proceedings have been initiated / admitted against the Prime Bidder, BHEL reserves the right to cancel, terminate or short close the contract or take any other action to safeguard BHEL's interest in the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHEL.

23.13 After execution of work, the work experience shall be assigned to the Prime Bidder and the consortium partner or partners for their respective scope of work. After successful execution of one work with a consortium partner under direct order of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.

23.14 The consortium partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. In case there are two consortium partners, then each partner shall submit SD equivalent to 0.5% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. However, Prime Bidder has also option for submission of SD on behalf of consortium partner (s).

SD submitted by Consortium Partner(s) may be released in case corresponding scope of work of the respective Consortium partner(s) has been completed upto the extent of 80% based on certification by Construction Manager and concurrence by the prime bidder.

23.15 In case of a Technical Tie up, all the clauses applicable for the Consortium partner shall be applicable for the Technical Tie up partner also.

24.0 The bidder shall submit/upload documents in support of possession of 'Qualifying Requirements' duly self-certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.

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25.0 The bidder may have to produce original document for verification if so decided by BHEL.

26.0 The consultant / firm (and any of its affiliates) shall not be eligible to participate in tender(s) for the related works or services for the same project, if they were engaged for the consultancy services.

27.0 Guidelines/rules in respect of Suspension of Business dealings, Vendor evaluation format, Quality, Safety & HSE guidelines, Experience Certificate, etc. may undergo change from time to time and the latest one shall be followed. The abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on www.bhel.com on "supplier registration page".

28.0 The offers of the bidders who are on the banned/ hold list and also the offer of the bidders, who engage the services of the banned/ hold firms, shall be rejected. The list of **banned/ hold firms** is available on BHEL web site www.bhel.com.

28.1 Integrity commitment, performance of the contract and punitive action thereof:

28.1.1 Commitment by BHEL:

BHEL commits to take all measures necessary to prevent corruption in connection with the tender Process and execution of the contract. BHEL will during the tender process treat all Bidder(s) in a transparent and fair manner, and with equity.

28.1.2 Commitment by Bidder/ Supplier/ Contractor:

- (i) The bidder/ supplier/ contractor commit to take all measures to prevent corruption and will not directly or indirectly influence any decision or benefit which he is not legally entitled to nor will act or omit in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India.
- (ii) The bidder/ supplier/ contractor will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract and shall adhere to relevant guidelines issued from time to time by Govt. of India/ BHEL.
- (iii) The bidder/ supplier/ contractor will perform/ execute the contract as per the contract terms & conditions and will not default without any reasonable cause, which causes loss of business/ money/ reputation, to BHEL.

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the prices or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India, then, action may be taken against such bidder/ supplier/ contractor as per extent guidelines of the company available on www.bhel.com and / or under applicable legal provisions.

29.0 Micro and Small Enterprises (MSE)

~~Any Bidder falling under MSE category, shall furnish the following details & submit documentary evidence/ Govt. Certificate etc. in support of the same along with their techno-commercial offer.~~

| Type under MSE | SC/ST owned | Women owned | Others (excluding SC/ ST & Women) |
|----------------|-------------|-------------|-----------------------------------|
| Micro | | | |
| Small | | | |

~~Note: - If the bidder does not furnish the above, offer shall be processed construing that the bidder is not falling under MSE category.~~

~~a) MSE suppliers can avail the intended benefits in respect of the procurements related to the Goods and Services only (Definition of Goods and Services as enumerated by Govt. of India vide Office Memorandum F. No. 21(8)/2011-MA dtd. 09/11/2016 office of AS & DC, MSME) only if they submit along with the offer,~~

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~~attested copies of either Udyam Registration Certificate or EM-II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or Udyog Aadhar Memorandum (UAM) & Acknowledgement or EM-II Certificate along with attested copy of a CA certificate (format enclosed as Annexure - 3) where deemed validity of EM-II certificate of five years has expired applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer. Documents submitted by the bidder may be verified by BHEL for rendering the applicable benefits.~~

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

31.0 PREFERENCE TO MAKE IN INDIA:

For this procurement, the local content to categorize a supplier as a Class I local supplier/ Class II local Supplier/Non-Local Supplier and purchase preferences to Class I local supplier, is as defined in Public Procurement (Preference to Make in India), Order 2017 dated 04.06.2020 issued by DPIIT. In case of subsequent orders issued by the nodal ministry, changing the definition of local content for the items of the NIT, the same shall be applicable even if issued after issue of this NIT, but before opening of Part-II bids against this NIT.

31.1 Compliance to Restrictions under Rule 144 (xi) of GFR 2017

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

Explanation

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- a. "Controlling ownership interest" means ownership of or entitlement to more than twenty-five per cent of shares or capital or profits of the company.
- b. "Control" shall include the right to appoint majority of the directors or to control the management or policy decisions including by virtue of their shareholding or management rights or shareholders agreements or voting agreements.
- 2. In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership.
- 3. In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person has ownership of or entitlement to more than fifteen percent of the property or capital or profits of the such association or body of individuals.
- 4. Where no natural person is identified under (1) or (2) or (3) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;
- 5. In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

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

VI. The successful bidder shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority.

Note:

- (i) The bidder shall provide undertaking for their compliance to this Clause, in the Format provided in **Annexure-11**.
- (ii) Registration of the bidder with Competent Authority should be valid at the time of submission as well as acceptance of the bids.

32.0 Bid should be free from correction, overwriting, using corrective fluid, etc. Any interlineation, cutting, erasure or overwriting shall be valid only if they are attested under full signature(s) of person(s) signing the bid else bid shall be liable for rejection.

All overwriting/cutting, etc., will be numbered by bid opening officials and announced during bid opening.

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

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

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

34.0 The Bidder declares that they will not enter into any illegal or undisclosed agreement or understanding, whether formal or informal with other Bidder(s). This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

In case, the Bidder is found having indulged in above activities, suitable action shall be taken by BHEL as per extant policies/ guidelines.

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35.0 Order of Precedence:

In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:

- a. Amendments/Clarifications/Corrigenda/Errata etc. issued in respect of the tender documents by BHEL
- b. Notice Inviting Tender (NIT)
- c. Price Bid
- d. Technical Conditions of Contract (TCC)—Volume-1A
- e. Special Conditions of Contract (SCC) —Volume-1B
- f. General Conditions of Contract (GCC) —Volume-1C
- g. Forms and Procedures —Volume-1D

It may please be noted that guidelines/ circulars/ amendments/ govt. directives issued from time to time shall also be applicable.

For BHARAT HEAVY ELECTRICALS LTD

(Addl. General Manager - Purchase)

Enclosure:

- 1) Annexure-1: Pre Qualifying Requirements.
- 2) Annexure-2: Check List.
- 3) ~~Annexure-3: Certificate by Chartered Accountant~~
- 4) Annexure-4: Reverse Auction Process Compliance Form
- 5) Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process
- 6) Annexure-6: RA Price Confirmation and Breakup
- 7) Annexure-7: Integrity Pact
- 8) Annexure-8: Undertaking as per PQR C4 of Annexure-1 i.e. PQR
- 9) Annexure-9: Declaration reg. Related Firms & their areas of Activities
- 10) Annexure-10 Declaration regarding minimum local content
- 11) Annexure-11: Declaration regarding compliance to restrictions under rule 144 (xi) of GFR 2017
- 12) Annexure 12: Important information.

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ANNEXURE - 1

PRE QUALIFYING CRITERIA

| | | | |
|------------------|---|--|--|
| JOB | Material Receipt, Unloading, Storage, record keeping, Preservation, Handling and Conservation of the Equipment at site, Erection, Commissioning & Testing of Combustion Modification System to reduce NOx level at Unit 7 (500MW) of NTPC Ramagundam TPS | | |
| TENDER NO | BHE/PW/PUR/RGMT-COM-MOD U7/2365 | | |
| SL NO | PRE QUALIFICATION CRITERIA | Bidders claim in respect of fulfilling the PQR Criteria | |
| | | Applicability | |
| A | <p>Submission of Integrity Pact duly signed (if applicable)</p> <p>(Note: To be submitted by Prime Bidder & Consortium /Technical Tie up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder)</p> | NOT APPLICABLE | |
| B | <p>B1 : TECHNICAL PQR</p> <p>B.1.1: Bidder must have Executed Erection & Commissioning of At least One Boiler (Consisting of "Pressure Parts" / "Structure") of a Unit of rating ≥ 190 MW in the last seven (7) years as on latest date of offer submission.</p> <p style="text-align: center;">OR</p> <p>B.1.2: Bidder must have completed Renovation & Modernization of At least One Boiler (Consisting of Pressure Parts) of a Unit of rating ≥ 190 MW in the last seven (7) years as on latest date of offer submission.</p> <p style="text-align: center;">OR</p> <p>B.1.3) Bidder must have successfully executed Overhauling/E&C of (Boiler Pressure parts or "Boiler Pressure Parts and 'Structure/Non Pressure Parts/ESP/Rotary Machines/Insulation/ Piping/Auxiliaries/ Ducting / any combination of these parts") of any rating, in the last seven (7) years as on latest date of offer submission as per the criteria below</p> <p>B.1.3.1) Executed One similar work of value not less than 71.6 Lakhs or 168 Ton against single work order.</p> <p>OR</p> <p>B.1.3.2) Executed two similar works of value not less than 44.75 Lakhs or 105 Ton against maximum two work orders each.</p> <p>OR</p> <p>B.1.3.3) Executed Three similar works each of value not less than 35.8 Lakhs or 84 Ton against maximum three work orders each</p> <p> Note for B.1.3: 'EXECUTED' means the bidder should have achieved the criteria specified in the Technical criteria of PQR (as in 'B.1.3' above)</p> | APPLICABLE | |

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| | | | |
|-----|---|---------------------------|--------------------|
| | | | |
| C.1 | <p><u>FINANCIAL TURNOVER:</u></p> <p>Bidders must have achieved an average annual financial turnover (audited) of Rs 26.85 Lakhs or more over last three Financial Years (FY) i.e. '2016-17, 2017-18 & 2018-19' OR '2017-18, 2018-19 & 2019-20'*</p> <p>*To consider last three financial years as '2016-17, 2017-18 & 2018-19', bidder must provide a declaration that they do not have financial (audited) statements for FY 2019-20.</p> | APPLICABLE | |
| C.2 | <p><u>NETWORTH</u> (only in case of Companies)</p> <p>Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive.</p> | APPLICABLE | |
| C.3 | <p><u>PROFIT</u></p> <p>Bidder must have earned profit in any one of the three Financial Years as applicable in the last three Financial Years as furnished for 'C-1' above.</p> | APPLICABLE | |
| C-4 | <p>Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking (Annexure-8) to this effect.</p> | APPLICABLE | |
| D | <p>Assessment of Capacity of Bidder:</p> <p>The "Assessment of Capacity of Bidders" for this Tender shall be carried out by considering the identified similar packages as "Others(Mechanical)"</p> | APPLICABLE | |
| E | <p><u>Approval of Customer (if applicable)</u></p> <p>Note: Names of bidders (including consortium/Technical Tie up partners in case consortium bidding is permitted) who stand qualified after compliance of criteria A to D shall be forwarded to customer for their approval</p> | APPLICABLE | |
| F | <p>Price Bid Opening</p> <p>Note: Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to E</p> | | BY BHEL |
| G | <p>Consortium tie-ups</p> | NOT APPLICABLE | |
| | <u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u> | | |
| | <p><u>Explanatory Notes for PQR B.1 (Technical)</u></p> <ul style="list-style-type: none"> • For the criteria (B.1), actual executed value shall be considered. • Value of work is to be updated with indices for "All India Avg. Consumer Price index for industrial workers" and "Monthly Whole Sale Price Index for All Commodities" with base month as per last month of work execution and indexed up to three (3) months prior to the month of latest due date of bid submission as per following formula- $P = R + \frac{0.425 \times R \times (X_N - X_0)}{X_0} + \frac{0.425 \times R \times (Y_N - Y_0)}{Y_0}$ <p>Where P = Updated value of work R = Value of executed work X_N = All India Avg. Consumer Price index for industrial workers for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index</p> | | |

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for Dec'2016 shall be considered).

X_0 = All India Avg. Consumer Price index for industrial workers for last month of work execution

Y_N = Monthly Whole Sale Price Index for All Commodities for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid-submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered).

Y_0 = Monthly Whole Sale Price Index for All Commodities for last month of work execution

- The evaluation currency for this tender shall be INR.

Explanatory Notes for Technical Criteria (B2):

1. VOID
2. Unless otherwise specified, for the purpose of "B2 Technical Criteria", the word 'EXECUTED' means achievement of milestones as defined below -
 - a. "ACHIEVEMENT OF PHYSICAL QUANTITIES" as per PQRs.
 - b. "READINESS FOR COAL FILLING" of at least one Bunker, in respect of Mill Bunker Structure.
 - c. "CHARGING" in respect of Power Transformers/ Bus Ducts/ "HT/LT Switchgears" / "HT/LT Cabling".
 - d. For C&I works: "SYNCHRONISATION" in case of power project / "WORK EXECUTION of the value as defined in PQR" in case of industry.
 - e. "BOILER LIGHT UP" in respect of Boiler / CFBC / ESP.
 - f. "CHARGING OF ATLEAST ONE PASS" in respect of ESP(R&M)
 - g. "GAS IN" in respect of HRSG.
 - h. "STEAM BLOWING" in respect of Power Cycle Piping.
 - i. "HYDRAULIC TEST"/ ANY OTHER EQUIVALENT TEST LIKE "100% RT/UT OF WELDED JOINTS" of the system in respect of Pressure parts/ LP Piping/CW Piping.
 - j. "FULL LOAD OPERATION OF THE UNIT" in respect of Insulation work.
 - k. "SYNCHRONISATION" in respect of STG / GTG.
 - l. "SPINNING" in respect of HTG.
 - m. "GAS IN" in respect of FGD
3. Boiler means HRSG or WHRB or any other types of Steam Generator.
4. Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass.
5. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5 TPH where ever rating of HRSG/BOILER is mentioned in MW. Similarly, where ever rating of Gas Turbine is mentioned in terms of Frame size, ISO rating of the same in terms of MW shall be considered for evaluation.

Explanatory Notes for PQR-C (Financial):

C-1:

- i. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated against C-1 above.
- ii. Evaluation of Turnover criteria shall be calculated from the Audited Balance Sheet and Profit & Loss Account for the three Financial Years (FY).
- iii. In case audited Financial statements have not been submitted for all the three years as indicated against C-1 above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years.
- iv. If financial statements are not required to be audited statutorily, then instead of audited financial statements, financial statements are required to be certified by Chartered Accountant.

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C-2: Net Worth (Only in case of companies) of the bidder should be positive.

Note: Net worth shall be calculated based on the latest Audited Accounts as furnished for 'C-1' above.

$$\text{Net worth} = \text{Paid up share capital} + \text{Reserves}$$

C-3: Bidder must have earned profit in any one of the three financial years as applicable in the last three financial years as furnished for 'C-1' above.

Note: PROFIT shall be PBT earned during any one year of last three financial years as in 'C-1' above.

C-4: Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking to this effect.

Common Explanatory Notes:

1. For evaluation of PQR, in case Bidder alone does not meet the pre-qualifying technical criteria B1 above, bidder may utilize the experience of its Parent/ Subsidiary Company along with its own experience, subject to following:
 - a. The parent company shall have a controlling stake of $\geq 50\%$ in the subsidiary company (as per Format-1).
 - b. The Parent Company/ Subsidiary Company of which experience is being utilized for bidding shall submit Security Deposit(SD) equivalent to 1% of the total contract value
 - c. The parent/ subsidiary company and bidder shall provide an undertaking that they are jointly or severally responsible for successful performance of the contract (as per Format-2).
 - d. In case Bidder is submitting bid as a Consortium Partner, option of utilizing experience of parent/subsidiary Company can be availed by Prime Bidder only.
 - e. Parent Company/ Subsidiary Company of which experience is being used for bidding, cannot participate as a 'Standalone Bidder' or as a 'Consortium bidder'.
2. Completion date for achievement of the technical criteria specified in the Common QR should be in the last 7 years ending on the 'latest date of Bid Submission' of Tender irrespective of date of the start of work.
3. "Executed" means the bidder should have achieved the technical criteria specified in the Common QR even if the Contract has not been completed or closed.
4. In case the Experience/PO/WO certificate enclosed by bidders do not have separate break up of prices for the E&C portion for Electrical and C&I works (i.e. the certificates enclosed are for composite order for supply and erection of Electrical and C&I and other works if any), then value of Erection & Commissioning for the Electrical and C&I portion shall be considered as 15% of the price for supply & erection of Electrical and C&I.
5. Following shall be complied with in case of consortium:
 - a. The Prime Bidder and Consortium Partner(s) are required to enter in to a consortium agreement and certify to BHEL regarding existence and validity of their consortium agreement in line with validity period mentioned in NIT.
 - b. Prime Bidder and Consortium partners shall be approved by Customer for being considered for the tender (applicable if customer approval is required).
 - c. Number of partners including prime Bidder shall be NOT more than 3 (three).
 - d. Prime Bidder alone shall necessarily comply with "B1 Technical Criteria" except for

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mechanical package where B1 criteria is not applicable.

- e. Prime Bidder and Consortium Partner shall together comply with the 'Pre-Qualification Requirements' specified for the respective category of technical requirement as per "B2 technical criteria".
- f. Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified.
- g. All other conditions shall be read in conjunction with clause no 23.0 of NIT.
- h. Prime Bidder shall be the Bidder who has a major share of work.
- i. Prime Bidder shall be responsible for the overall execution of the Contract.
- j. Performance shall be evaluated for Prime Bidder and the Consortium partner for their respective scope of work.
- k. In case the Consortium partner backs out, another consortium partner meeting the QRs, has to be engaged by Prime Bidder and if not, the respective work will be withdrawn and executed on risk and cost basis of the prime bidder.
- l. In case Prime Bidder withdraws or insolvency / liquidation / winding up proceedings have been initiated / admitted against the Prime Bidder, BHEL reserves the right to cancel, terminate or short close the contract or take any other action to safeguard BHEL's interest in the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHEL
- m. After successful execution of one work with a consortium partner under direct orders of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.
- n. The Consortium partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value.

BIDDER SHALL SUBMIT ABOVE PRE-QUALIFICATION CRITERIA FORMAT, DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT INCLUSIVE OF WORK ORDER AND WORK COMPLETION CERTIFICATE ETC IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.

Credentials submitted by the bidder against "PRE QUALIFYING CRITERIAS" shall be verified for its authenticity. In case, any credential (s) is/are found unauthentic, offer of the bidder is liable to the rejection. BHEL reserves the right to initiate any further action as per extant guidelines for Suspension of Business Dealings.

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Format-1

Certificate for relationship between Parent Company / Subsidiary Company and the bidder

To,

.....

.....

Dear Sir,

Sub: Bid for NIT Nodated..... for "....." (name of the tender).

We hereby certify that M/s..... is Parent Company/ Subsidiary Company of M/s(the bidder) and details of equity holding of the Parent Company in Subsidiary Company as on(not earlier than seven days prior to the Bid Submission Date) are given as below:

| Name of Parent Company | Name of Subsidiary Company | Percentage of Equity Holding of Parent Company in Subsidiary Company |
|------------------------|----------------------------|--|
| | | |

(Insert Name and Signature of Statutory Auditor or practicing Company Secretary of the Bidder)

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Format-2

Undertaking from the Parent Company/ Subsidiary Company of the bidder

(On the Letter Head of Parent Company/ Subsidiary Company, as applicable)

From,
Name:
Full Address:

Telephone No.:
E-mail address:
Fax/No.:

To,
.....
.....

Dear Sir,

We refer to the NIT No dated for " " (name of the Tender).

"We have carefully read and examined in detail the NIT/Tender Terms and Conditions, including in particular, Clause of the NIT/Tender, regarding submission of an Undertaking, as per the prescribed Format 1 of the NIT/ Tender.

We confirm that M/s.....(the Bidder) has been authorized by us to use our Technical capability for meeting the Technical Criteria as specified in Clause.....of the PQR of the NIT/Tender referred above.

We agree to submit the Security Deposit equivalent to 1% of the total contract value in addition to Security Deposit to be submitted by Bidder as per Clause.....of the NIT/Tender for fulfillment of all obligations in terms of provisions of the contract, in the event of(the Bidder) being selected as the Successful Bidder.

We confirm that we along with M/s.....(the bidder), are jointly or severally responsible for successful performance of the contract.

We confirm that our company shall not participate in the above tender as a 'Standalone Bidder' or as a 'Consortium bidder' and also shall not authorize any other bidder to use our Technical capability for the above tender.

All the terms used herein but not defined, shall have the meaning as ascribed to the said terms under the referred NIT/Tender.

Signature of Managing Director/Authorized signatory of Parent/ Subsidiary Company

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ANNEXURE - 2

CHECK LIST

NOTE: - Tenderers are required to fill in the following details and no column should be left blank

| | | | | |
|-----|--|--|-----------------------------------|--------------------|
| 1 | Name and Address of the Tenderer | | | |
| 2 | Details about type of the Firm/Company | | | |
| 3.a | Details of Contact person for this Tender | Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No: | | |
| 3.b | Details of alternate Contact person for this Tender | Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No: | | |
| 4 | EMD DETAILS | DD No: Date : Bank : Amount: <u>Please tick (✓) whichever applicable:-</u> ONE TIME EMD / ONLY FOR THIS TENDER | | |
| 5 | Validity of Offer | TO BE VALID FOR SIX MONTHS FROM DUE DATE | | |
| | | | APPLICABILITY (BY BHEL) | ENCLOSED BY BIDDER |
| 6 | Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format | | Applicable | YES / NO |
| 7 | Audited profit and Loss Account for the last three years | | Applicable/ <u>Not Applicable</u> | YES/NO |
| 8 | Copy of PAN Card | | Applicable/ <u>Not Applicable</u> | YES/NO |
| 9 | Whether all pages of the Tender documents including annexures, appendices etc. are read understood and signed | | Applicable/ <u>Not Applicable</u> | YES/NO |
| 10 | Integrity Pact | | Applicable/ <u>Not Applicable</u> | YES/NO |
| 11 | Declaration by Authorized Signatory | | Applicable/ <u>Not Applicable</u> | YES/NO |
| 12 | No Deviation Certificate | | Applicable/ <u>Not Applicable</u> | YES/NO |
| 13 | Declaration confirming knowledge about Site Conditions | | Applicable/ <u>Not Applicable</u> | YES/NO |
| 14 | Declaration for relation in BHEL | | Applicable/ <u>Not Applicable</u> | YES/NO |
| 15 | Non-Disclosure Certificate | | Applicable/ <u>Not Applicable</u> | YES/NO |

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| | | | |
|----|---|---------------------------------------|----------|
| 16 | Bank Account Details for E-Payment | Applicable/ Not Applicable | YES/NO |
| 17 | Capacity Evaluation of Bidder for current Tender | Applicable/ Not Applicable | YES/NO |
| 18 | Tie Ups/Consortium Agreement are submitted as per format | Applicable/ Not Applicable | YES / NO |
| 19 | Power of Attorney for Submission of Tender/Signing Contract Agreement Power of Attorney of Consortium Partner. | Applicable/ Not Applicable | YES/NO |
| 20 | Analysis of Unit rates | Applicable/ Not Applicable | YES/NO |

NOTE: STRIKE OFF 'YES' OR 'NO', AS APPLICABLE. TENDER NOT ACCCOMPANIED BY THE PRESCRIBED **ABOVE APPLICABLE DOCUMENTS ARE LIABLE TO BE SUMMARILY REJECTED.**

DATE :

AUTHORISED SIGNATORY

(With Name, Designation and Company seal)

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ANNEXURE-3

Certificate by Chartered Accountant on letter head

(applicable upto 31st March'2021 in line with MSME notification no. S.O. 2119 (E), dated 26th June'2020)

This is to Certify that M/S
(hereinafter referred to as 'company') having its registered office at
..... is registered under MSMED Act 2006, (Entrepreneur
Memorandum No. (Part II)/ Udyam Registration Certificate No.
..... dtd: Category: (Micro/Small/Medium)).
(Copy enclosed).

Further verified from the Books of Accounts that the investment of the company as per the latest
audited financial year as per MSMED Act 2006 is as follows:

1. For Manufacturing Enterprises: Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No. S.O.1722(E) dated October 5, 2006:
Rs Lacs
2. For Service Enterprises: Investment in equipment (original cost excluding land and building and furniture, fittings and other items not directly related to the service rendered or as may be notified under the MSMED Act 2006:
Rs Lacs
3. For Enterprises (having EM II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum): Investment in plant and machinery or equipment is Rs Lacs and turnover is Rs. Lacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)
4. For Enterprises (having EM II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum): Investment in plant and machinery or equipment is Rs Lacs and turnover is Rs. Lacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)

(Strike off whichever is not applicable)

The above investment of Rs Lacs is within permissible limit of
Rs Lacs for Micro / Small/ Medium (Strike off which is not applicable)
Category under MSMED Act 2006.

Or

The enterprise has been graduated upward from its original category (micro/small/medium) (strike off which is not applicable), the enterprise shall maintain its prevailing status till expiry of one year from the close of year of registration, as notified vide S.O. No. 2119 (E) dated 26.06.2020 published in the gazette notification dated 26.06.2020 by Ministry of MSME.

Or

The enterprise has been reverse graduated from its original category (micro/small/medium) (strike off which is not applicable), the enterprise will continue in its present category till the closure of the financial year and it will be given the benefit of the changed status only with effect from 1st April of the financial year following the year in which such change took place, as notified vide S.O. No. 2119 (E) dated 26.06.2020 published in the gazette notification dated 26.06.2020 by Ministry of MSME.

Date:

(Signature)

Name:

Membership Number:

Seal of the Chartered Accountant

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ANNEXURE-4

Reverse Auction Process Compliance Form

(The bidders are required to print this on their company's letterhead and sign, stamp before RA)

To

- M/s. {Service provider}
- *Postal address}*

Sub: Agreement to the Process related Terms and Conditions

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{ BHE/PW/PUR/RGMT-COM-MOD U7/2365} dt. {.....} This letter is to confirm that:

- 1) The undersigned is authorized official/ representative of the company to participate in RA and to sign the related documents.
- 2) We have studied the Reverse Auction guidelines (as available on www.bhel.com), and the Business rules governing the Reverse Auction as mentioned in your letter and confirm our agreement to them.
- 3) We also confirm that we have taken the training on the auction tool and have understood the functionality of the same thoroughly.
- 4) We also confirm that, in case we become L1 bidder, we will FAX/ email the price confirmation & break up of our quoted price as per Annexure - 6 within **two** working days (of BHEL) after completion of RA event, besides sending the same by registered post/ courier both to M/s. BHEL and M/s. {Service provider.}

We, hereby confirm that we will honor the Bids placed by us during the auction process.

With regards

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

Sign this document and FAX/ email it to M/s {Service provider} at {.....} prior to start of the Event.

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ANNEXURE – 5

Authorization of representative who will participate in the on line Reverse Auction Process:

| | | |
|---|---|--|
| 1 | NAME OF THE BIDDER | |
| 2 | NAME & DESIGNATION OF OFFICIAL | |
| 3 | POSTAL ADDRESS (COMPLETE) | |
| 4 | TELEPHONE NOS. (LAND LINE & MOBILE BOTH) | |
| 5 | E-MAIL ADDRESS | |
| 6 | NAME OF PLACE/ STATE/ COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION | |

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ANNEXURE - 6

Reverse Auction price confirmation and breakup
(To be submitted by L1 bidder after completion of Reverse Auction)

To

- *M/s. Service provider*
- *Postal address*

CC: M/s BHEL POWER SECTOR WESTERN REGION, Nagpur

Sub: **Final price quoted during Reverse Auction and price breakup**

Dear Sir,

We confirm that we have quoted.

Rs. _____ (in value) &

_____ (in words)

**for item(s) covered under tender enquiry No. BHE/PW/PUR/RGMT-COM-MOD
U7/2365**

~~Total price of the items covered under above cited enquiries is inclusive of {Packing & forwarding, GST, E.D., C.S.T., freight and insurance charges up to {.....} District, {.....} State and Type Test Charges etc., (exclusive of service tax), other as per NIT}~~

as our final landed prices as quoted during the Reverse Auction conducted today {date _____} which will be valid for a period of {____ in nos. & in words ____} days. as mentioned in the subject tender.

Yours sincerely,

For _____

Name:

Company:

Date:

Seal:

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ANNEXURE – 7

INTEGRITY PACT

Between

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

and

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

Preamble

~~The Principal intends to award, under laid down organizational procedures, contract/s for~~

~~_____. The Principal values full compliance with all relevant laws of the land, rules and regulations, and the principles of economic use of resources, and of fairness and transparency in its relations with its Bidder(s)/ Contractor(s).~~

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

Section 1- Commitments of the Principal

~~1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:~~

~~1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.~~

~~1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.~~

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1.1.3 The Principal will exclude from the process all known prejudiced persons.

1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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

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

2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.

2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

2.3 The Bidder(s)/ Contractor(s) shall not approach the Courts while representing the matters to IEMs and will await their decision in the matter.

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

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in

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question, the Principal is entitled to disqualify the Bidder(s) / Contractor(s) from the tender process or take action as per the separate "Guidelines on Banning of Business dealings with Suppliers/ Contractors", framed by the Principal.

Section 4 - Compensation for Damages

- 4.1 If the Principal has disqualify the Bidder from the tender process prior to the award according to Section 3, the Principal is entitled to demand and recover the damages equivalent Earnest Money Deposit/ Bid Security.
- 4.2 If the Principal has terminated the contract according to Section 3, or if the Principal is entitled to terminate the contract according to section 3, the Principal shall be entitled to demand and recover from the Contractor liquidated damages equivalent to 5% of the contract value or the amount equivalent to Security Deposit/ Performance Bank Guarantee, whichever is higher.

Section 5 - Previous Transgression

- 5.1 The Bidder declares that no previous transgressions occurred in the last 3 years with any other company in any country conforming to the anti-corruption approach or with any other Public Sector Enterprise in India that could justify his exclusion from the tender process.
- 5.2 If the Bidder makes incorrect statement on this subject, he can be disqualify from the tender process or the contract, if already awarded, can be terminated for such reason.

Section 6 - Equal treatment of all Bidders/ Contractors / Sub-contractors

- 6.1 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors.
- 6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

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

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

Section 8 - Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The

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~~Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality in line with Non-disclosure agreement.~~

~~8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.~~

~~8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.~~

~~8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.~~

~~8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.~~

~~8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.~~

~~8.9 IEM should examine the process integrity; they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.~~

~~8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.~~

~~8.11 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.~~

~~8.12 The word 'Monitor' would include both singular and plural.~~

Section 9 – Pact Duration

~~9.1 This Pact shall be operative from the date IP is signed by both the parties till the final completion of contract for successful bidder and for all other bidders 6 months after the contract has been awarded. Issues like warranty / guarantee etc. should be outside the purview of IEMs.~~

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~~9.2 If any claim is made/ lodged during currency of IP, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged/ determined by the CMD, BHEL.~~

Section 10 – Other Provisions

~~10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.~~

~~10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.~~

~~10.3 If the Contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.~~

~~10.4 Should one or several provisions of this agreement turn out to be invalid, the remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.~~

~~10.5 Only those bidders / contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.~~

For & On behalf of the Principal

(Office Seal)

For & On behalf of the Bidder/ Contractor

(Office Seal)

Place _____

Date _____

Witness: _____

Witness: _____

(Name & Address) _____

(Name & Address) _____

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ANNEXURE - 8

UNDERTAKING

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

To,

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

Dear Sir/Madam,

Sub: DECLARATION REGARDING INSOLVENCY/ LIQUIDATION/ BANKRUPTCY PROCEEDINGS

Ref: NIT/Tender Specification No: BHE/PW/PUR/RGMT-COM-MOD U7/2365

I/We, _____ declare that,
I/We am/are not under insolvency resolution process or liquidation or Bankruptcy Code Proceedings (IBC) as on date, by NCLT or any adjudicating authority/authorities, which will render us ineligible for participation in this tender.

**Sign. of the AUTHORISED SIGNATORY
(With Name, Designation and Company seal)**

Place:

Date:

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Annexure-9

DECLARATION

Date: _____

To _____

BHEL, _____

Email: _____

Sub: Details of related firms and their area of activities

Dear Sir/ Madam,

Please find below details of firms owned by our family members that are doing business/ registered for same item with BHEL, _____ (NA, if not applicable).

| | | |
|---|-------------------------------------|--|
| 1 | Material Category/ Work Description | |
| | Name of Firm | |
| | Address of Firm | |
| | Nature of Business | |
| | Name of Family Member | |
| | Relationship | |
| 2 | Material Category/ Work Description | |
| | Name of Firm | |
| | Address of Firm | |
| | Nature of Business | |
| | Name of Family Member | |
| | Relationship | |

Note: I certify that the above information is true and I agree for penal action from BHEL in case any of the above information furnished is found to be false.

Regards,

(_____)

From: M/s _____
Supplier Code: _____
Address: _____

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Annexure-10

**DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH
REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH JUNE,
2020 AND SUBSEQUENT ORDER(S)**

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

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

Dear Sir,

Sub: Declaration reg. minimum local content in line with Public Procurement (Preference to Make in India), Order 2017-Revision, dated 04th June, 2020 and subsequent order(s).

Ref : 1) NIT/Tender Specification No:,
2) All other pertinent issues till date

We hereby certify that the items/works/services offered by..... (specify the name of the organization here) has a local content of _____ % and this meets the local content requirement for '**Class-I local supplier**' / '**Class II local supplier**' ** as defined in Public Procurement (Preference to Make in India), Order 2017-Revision dated 04.06.2020 issued by DPIIT and subsequent order(s).

The details of the location(s) at which the local value addition is made are as follows:

1. _____ 2. _____
3. _____ 4. _____

...

...

...

Thanking you,
Yours faithfully,

**(Signature, Date & Seal of
Authorized Signatory of the Bidder)**

**** - Strike out whichever is not applicable.**

Note:

1. Bidders to note that above format Duly filled & signed by authorized signatory, shall be submitted along with the techno-commercial offer.
2. In case the bidder's quoted value is in excess of Rs. 10 crores, the authorized signatory for this declaration shall necessarily be the statutory auditor or cost auditor of the company (in the case of companies) or a practising cost accountant or practicing chartered accountant (in respect of suppliers other than companies).
3. In the event of false declaration, actions as per the above order and as per BHEL Guidelines shall be initiated against the bidder.

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Annexure-11

DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi) OF GFR 2017

(To be typed and submitted in the Letter Head of the Entity/Firm providing certificate as applicable)

To,

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

Dear Sir,

Sub: Declaration regarding compliance to Restrictions under Rule 144 (xi) of GFR 2017

Ref : 1) NIT/Tender Specification No:
2) All other pertinent issues till date

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries. I certify that _____
(specify the name of the organization here), is not from such a country / has been registered with the Competent Authority (attach valid registration by the Competent Authority, i.e., the Registration Committee constituted by the Dept. for Promotion of Industry and Internal Trade (DPIIT)); and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. (attach relevant valid registration, if applicable)

I hereby certify that we fulfil all requirements in this regard and is eligible to be considered.

Thanking you,
Yours faithfully,

**(Signature, Date & Seal of
Authorized Signatory of the Bidder)**

Note: Bidders to note that in case above certification given by a bidder, whose bid is accepted, is found to be false, then this would be a ground for immediate termination and for taking further action in accordance with law and as per BHEL guidelines.

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Annexure-12: IMPORTANT INFORMATION

E -Tender for this work is invited by BHEL PSWR NAGPUR and offer shall be submitted through BHEL e-procurement portal only. All correspondences regarding this tender shall be through E-procurement portal.

Postal Address:

AGM /Purchase BHEL PSWR,
SRIMOHINI COMPLEX, Floor No. 5 & 6, 345 KINGSWAY, NAGPUR 440001, INDIA

Following are the concerned BHEL officials to whom bidders can contact in case of any difficulty:

AGM Purchase, Email: prchiwarkar@bhel.in, Ph: +91 - 712 - 2858 - 633

Dy Manager Purchase, Email: nktiware@bhel.in, Ph: +91 - 712 - 3048 - 713

Dy Manager Purchase, Email: vivekjha@bhel.in Ph: +91 - 712 - 2858 -715

1. Refer Chapter XII of Volume IB Special Conditions of Contract regarding Suspension of Business Dealings: The abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' has now been uploaded on www.bhel.com on "supplier registration page" at the following link: http://www.bhel.com/vender_registration/pdf/Suspension_guidelines_abridged.pdf

2. All Statutory Requirements as applicable for this project shall be complied with.

3. Following clause shall form part of the HSE documents issued under Chapter IX of Volume IB 'Special Conditions of Contract'

"In case of any financial deduction made by Customer for lapses of safety other than what is provided elsewhere in the contract, the same shall be charged on back-to-back basis on the defaulting contractor without prejudice to any other right spelt anywhere in the tender /contract"

4. Void

5. Void

6. The following paragraph has been added in clause 2.7.1 under clause 2.7 "Rights of BHEL" of General Conditions of Contract (Volume-IC GCC):

In case of inadequate manpower deployed by contractor, BHEL reserves the right to deploy additional manpower through any other agency for expediting activities in the interest of the project. Supplied manpower shall be put on job by the contractor and payments and other statutory compliances related to manpower shall

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be the contractor's responsibly. In case of contractor's failure to fulfil his obligations in respect of such manpower, BHEL reserves the right to take necessary action as per contract conditions

9. Delay in 1st submission of SDBG/ PBG: SDBG/ PBG is to be furnished by the vendor before start of work. No payment will be released till SDBG/PBG is submitted by the vendor.

However if requested by the vendor, cash recovery equivalent to SDBG/ PBG value to be made from the running bills submitted by the vendor. In such case, recovery of interest calculated @SBI PLR +2% on amount equivalent to SDBG/ PBG value to be made for the gap period (difference between date of start of work and date of submission of BG/ cash recovery).

10. Compensation in case of Death/ Permanent Incapacitation of Person: BHEL shall recover the amount of compensation paid to victim (s) by BHEL towards loss of life/ permanent disability due to an accident which is attributable to the negligence of contractor, agency or firm or any of its employee as detailed below:

a) Victim: Any person who suffers permanent disablement or dies in an accident as defined below.

b) Accident: Any death or permanent disability resulting solely and directly from any unintended and unforeseen injurious occurrence caused during the manufacturing/ operation and works incidental thereto at BHEL factories/ offices and precincts thereof, project execution, erection and commissioning, services, repairs and maintenance, trouble shooting, serving, overhaul, renovation and retrofitting, trial operation, performance guarantee testing undertaken by the company or during any works/ during working at BHEL Units/ Offices/ townships and premises/ Project sites.

c) Compensation in respect of each of the victims:

(ii) In the event of death or **permanent disability** resulting from **Loss of both limbs:** Rs 10,00,000/- (**Rs Ten Lakh**)
(iii) In the event of **other permanent disability:** Rs 7,00,000/- (**Rs Seven Lakh**)

d) Permanent Disablement: A disablement that is classified as a permanent total disablement under the proviso to Section 2(I) of the Employee's Compensation Act, 1923.

11. Acceptance of Bank Guarantee (BG)

Revision in Acceptance of Bank Guarantee (BG) Clause no. 1.10.3 (iii) of Vol I C GCC:

Clause No. 1.10.3 (iii) of Vol IC GCC is revised as below: -

"Bank Guarantee issued by:

a. Any of the BHEL consortium bank listed below:

State Bank of India
ABN Amro Bank N.V.

Bank of Baroda

Canara Bank

Citi Bank N.A.

Corporation Bank

Deutsche Bank

HDFC Bank Ltd.

The Hongkond and Shanghai Banking Corporation Ltd

ICICI Bank Ltd.

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IDBI Ltd.
Punjab National Bank
Standard Chartered Bank
State Bank of Travancore
State Bank of Hyderabad
Syndicate Bank

b. Any public sector Bank (other than consortium banks) with a clause in the text of Bank Guarantee that "**It is enforceable at Nagpur, Maharashtra**".

c. Any private sector banks, with a clause in the text of Bank Guarantee that "**It is enforceable by being presented at any branch of the bank**".

Note: "Bank Guarantees issued by Co-operative Banks are not acceptable".

12. Broad Terms & Conditions of Reverse Auction:

In continuation to Clause 19.0 of NIT (Notice Inviting Tender) following are the broad terms and conditions of Reverse Auction:

"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on www.bhel.com) (http://www.bhel.com/vender_registration/pdf/Guidelines%20for%20Reverse%20Auction-2020.pdf) for this tender. RA shall be conducted among all the techno-commercially qualified bidders. Price bids of all techno-commercially qualified bidders shall be opened and same shall be considered as initial bids of bidders in RA. In case any bidder(s) do(es) not participate in online Reverse Auction, their sealed envelope price bid along with applicable loading, if any, shall be considered for ranking."

Note:-

- 1. No benefits to MSE bidders w.r.t Reverse Auction Guidelines as available on www.bhel.com.***
- 2. In case of enquiry through e-procurement the sealed electronic price bid (e-bid) is to be treated as sealed envelope price bid.***

13. Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NIT/GCC

14. Price Variation Compensation Clause no 2.17 of standard GCC shall not be applicable

15. Overrun compensation clause no. 2.12 of standard GCC shall not be applicable

16. Clause no. 2.24 of GCC PERFORMANCE GUARANTEE FOR WORKMANSHIP: The guarantee period of twelve months shall commence after the completion of work as certified by Engineer-in-Charge.

17. Bidder to strictly follow all the necessary guidelines issued by Customer, District Magistrate, State Government and Central government to control Covid-19 outbreak. The related towards quarantine Centre/Medical expenses etc., if any, shall be in the bidder's scope

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18. CI 1.2.1 of '1.2 Submission of Tenders' of Chapter -1 of VOL IC- GCC (General Conditions of Contract) is amendment as below:

| Existing | Amended/To be read as |
|--|--|
| 1.2.1) The tenderers must submit their tenders to Officer inviting tender (Or upload on E portal website https://bhel.abcprocure.com in case of E tender) as per instructions in the NIT. | 1.2.1) The tenderers must submit their tenders to Officer inviting tender (Or upload on E portal website https://eprocurebhel.co.in in case of E tender) as per instructions in the NIT. |

NOTE / New:

E procurement portal for E tendering is: E portal website -

<https://eprocurebhel.co.in> All relevant clauses shall be read accordingly.

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TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC) CONTENTS

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| 15 | Testing, Pre-Commissioning and Commissioning | Chapter-XV |
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| 17 | BILL OF QUANTITIES AND WEIGHTAGE OF INDIVIDUAL ITEMS | Chapter-XVII |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-I: Project Information

| Project Information | |
|----------------------------|--|
| 1.0 | Project Title |
| | <p>1. Introduction- Projects under Lot-1 of NTPC Limited (A Government of India)/ Its Joint venture were commissioned after year 2004 and units are under operation. Combustion Modification is to be undertaken in Unit 7 (500MW) of NTPC Ramagundam TPP to reduce the NOx level.</p> <p>2. Purchaser - M/s NTPC Ramagundam</p> <p>3. Project Title - Material Receipt, Unloading, Storage, record keeping, Preservation, Handling and Conservation of the Equipment at site, Erection, Commissioning & Testing of Combustion Modification System to reduce NOx level at Unit 7 (500MW) of NTPC Ramagundam TPS</p> <p>4. Nearest Railway Station - Nearest railway station is at Ramagundam</p> <p>5. Nearest airport - Hyderabad</p> <p>Note-The Bidder shall visit site and get acquainted himself with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually binding on BHEL/ Owner. All relevant site data/information as may be necessary shall have to be obtained /collected by the Bidder.</p> |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

SCOPE OF WORK

Material Receipt, Unloading, Storage, record keeping, Preservation, Handling and Conservation of the Equipment at site, Erection, Commissioning & Testing of Combustion Modification System to reduce NOx level at Unit 7 (500MW) of NTPC Ramagundam TPS

PART- A: - Material Handling and Material Management Job

1. Material Receipt, Unloading, Storage, Preservation, Handling and Conservation of the Equipment at site:-

- 1.1.** Material for combustion modification system shall be supplied by BHEL manufacturing unit / BHEL vendor.
- 1.2.** All the materials are to be received, unloaded and stored at contractor/BHEL / NTPC stores by the contractor as per the instruction of BHEL Engineer.
- 1.3.** Complete manpower, T&P, Mobile crane/ hydra & its operator and consumables etc. required for convenient unloading & storage of material is to be provided/ arranged by contractor.
- 1.4.** Stacking and storing of materials at open storage yard or covered stores or semi-closed sheds as per BHEL site engineer instructions.
- 1.5.** Storage & Preservation of materials received inside the project premises up to erection of same shall be in accordance with BHEL's preservation manual or as per BHEL's instructions.
- 1.6.** All arrangements like Wooden sleepers / concrete blocks / steel frames and tarpaulins, preservatives, paints etc... for the purpose of storage and preservation wherever deemed necessary shall in the scope of Bidder.
- 1.7.** Detailed verification of materials with reference to packing list and loading advice slip after unpacking of boxes; repacking after detailed verification; preparation of receipt inspection reports.
- 1.8.** Issue of materials for execution of work at site. In plant transportation of materials to site. Identification of Materials at Stores & their transportation from stores to site including necessary shifting/removal of other materials stacked on the identified material, un- packing of the materials, removal of any obstructions & hindrances etc...
- 1.9.** Reconciliation of materials after completion of site.
- 1.10.** Maintenance of area where the material will be kept by means of proper lighting, cleaning in and around storage yards and sheds. General cleaning, grass cutting and upkeep of storage yard, covered and semi-closed /stores sheds.
- 1.11.** The contractor shall make data entry in computer & maintain computerized records for receipt & issue of materials.
- 1.12.** The contractor shall assist BHEL in raising insurance claim in case of damage, short supply, theft or any other cause in consultation with BHEL engineers and assist during survey work by the surveyor of insurance company. Responsibility of raising MDR and lodging of insurance claims lies with BHEL. However the contractor will be required to provide the necessary information

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

and inputs [like lodging of FIRs with local police stations etc.] immediately after occurrence of such incidents.

- 1.13.** Any discrepancy / shortage / damage found in the consignment after taking delivery from the carriers after giving clear receipt would be the responsibility of the contractor and the amount liable to be lost by BHEL on such accounts is recoverable from the contractor.
- 1.14.** In case of apparent damages / shortages in consignments / packing noticed by the contractor, such cases shall be brought to the notice of BHEL and cleared only with their consent/approval.
- 1.15.** The detention charges, if any, in the event of delay in unloading from the carrier, will be to contractor's account.
- 1.16.** It shall be the responsibility of the contractor, to provide all necessary facilities to open the packages, in the presence of the Engineer, verifying their contents, re-packing wherever and whenever necessary, properly stacking them as may be directed by the Engineer. These works should be so done so as to facilitate proper handling, periodical verification of materials, receipt position, stock taking etc. The contractor shall have experienced persons at site who can maintain the records of dispatch / receipt/ stacking / verification / shortage / damage / missing items etc. The verification of materials shall be carried out within fifteen days and report shall be submitted as a documentary proof.
- 1.17.** All materials shall be stored at least 8" above ground level by use of sleepers or on steel frames. No material shall be left to remain on ground at any time. Materials shall not be stacked in low lying areas, where they are likely to get flooded during rains. Wooden sleepers / concrete blocks / steel frames and tarpaulins for this purpose wherever deemed necessary shall be arranged by sub-contractor without any extra cost to BHEL.
- 1.18.** The contractor shall execute the work in the most substantial and workman like manner. The stores shall be handled with care and diligence. Any loss to BHEL due to contractor's lapse / negligence shall have to be made good by the contractor.
- 1.19.** In case contractor is not able to unload, transport, stack the material at a pre-determined area, as per direction of the Engineer for any reason whatsoever (including non-availability of crane, tractor trailer and other T&P etc.), BHEL shall be at liberty to get the work done by engaging other agency / equipment / T&P etc. at the risk and cost of the contractor.
- 1.20.** It shall be the responsibility of the contractor to keep the storage areas (closed / semi- closed / open) in neat and tidy conditions. Any vegetation like grass, bushes, Sarkandas etc. shall be cut periodically in open storage area & removed as per requirement & instructions of BHEL Engineer within the contractual value. All surplus / unusable packing materials shall be removed and deposited at location(s) specified by BHEL within the project premises.
- 1.21.** **All Necessary Preparation, Development, Barricading and Marking of the Area has to be made by the sub-contractor for Storage, Fabrication, and Pre Assembly & Erection of the Materials.**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

- 1.22.** Supply of material is expected to commence from Jan'2020. Approximate weight of material to be unloaded at site is 260 MT. Final weight for unloading may increase/ decrease as per actual shipment from BHEL Manufacturing units.
- 1.23.** Providing Consumables/Oil for Hydra/Crane will be in the scope of contractor i.e. BHEL will not pay any charges separately for fuel/consumable.
- 1.24.** Providing required manpower including supervision, tools and plants, consumables, etc. for Material Handling and Materials Management Services.
- 1.25.** Re-handling and restacking of materials as and when called for by BHEL. This also includes excess / redundant / scrap materials returned to stores by BHEL erection contractors.
- 1.26.** Handling and loading of outgoing materials those are to be sent to other destinations.

PART B: Pre-shutdown/preparatory work & Work During shutdown work (Mechanical, Electrical and C&I), Restoration work

2. PRE SHUTDOWN/ PREPARATORY WORK:-

- 2.1.** Mobilization of site immediately after receipt of LOI/BHEL intimation.
- 2.2.** Arranging gate pass, insurance & accommodations to the contract personnel.
- 2.3.** Verification of erection material.
- 2.4.** Welder Test as per BHEL/NTPC norms
- 2.5.** Making necessary scaffolding, monorail, hoist along with suitable platforms & approach for shutdown work.
- 2.6.** Subcontractor to deploy experienced gangs for Structures; Ducts & Pressure parts. **List of minimum manpower required for the job is listed in Clause-4**
- 2.7.** Tentative weight of materials envisaged for erection is 262 MT per Unit. Tentative Nos of HP Joints envisaged is 350 per Unit. Quantity may increase or decrease as per site requirement.
- 2.8.** The Contractor has to provide all required Tools & Plants (T&Ps) in sufficient quantities including Trailers, Hydras, Derrick Structures, Chain Pulley Blocks, Pulls & Lifts, Manual Winches, Slings, Eye Bolts, D-Shackles, Alignment Clamps, Pipe Clamps, Welding Machines, Gas Cutting Sets, TIG & Arc Welding Sets, Spanners (up to 90 mm), Grinders, Heat Treatment and **NDT** Equipments, Water Washing Hose Pipes and Attachments and all other types of Tools & Plants. List of minimum T&P required is mentioned in Chapter- III "Facilities in the scope of contractor" of TCC
- 2.9.** All Necessary arrangements are to be made for handling, lifting, shifting, erection, placement, assembly, matching, alignment, supporting, welding, cutting, grinding, drilling, DPT, Radiography, Heat Treatment and other associated works etc. for the materials to be erected/dismantled. Including providing of all required Manpower, T&Ps, MMDs, Consumables and Other Materials.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

- 2.10. The contractor shall carry out Dismantling, Removal, Shifting of any obstructing structures, pipe lines, cables & cable trays, equipments, facilities etc. as required including restoration of the same on completion of work.
- 2.11. All necessary arrangements are to be made by the contractor for transportation of materials including providing of all required Manpower, Hydras, Trailers, Tractors and other means of transportation along with operators & fuel.
- 2.12. Removal/ erection/replacement/ re-erection of structural floors, beams, bracings, cable trays, buck stays or any other structure and system fouling with duct routing. BOFA Duct tapping shall be taken from hot secondary air duct (Left & Right) near wind box (approx. El 38500) to BOFA assembly above Burner area (approx. El 50200).
- 2.13. Removal/ erection/replacement/ re-erection of fouling structural floors at Elevation 44668 and El. 47700 or any other floor as per BHEL requirement.
- 2.14. Modification of structural floor to accommodate New ducting (Hot air duct to BOFA Panels) system. Modification of floor at different Elevation near wind box area 41100, 41500, 44700 & 47700 or any other floor as per BHEL requirement.
- 2.15. Placement, erection of structural beams, bracings, floor grills, hand rails, pipes etc. Erection, fit up & welding of structures & platforms. Self-drilling screw for floor grills is in contractor scope.
- 2.16. Erection & welding of structure as per BHEL standards & quality plan. LPI of welded beams, bracings as per Quality plan. Supply of all consumables including Welding electrodes is in subcontractor scope.
- 2.17. Erection & Placement of Benches/ Platform required for operation for all newly installed systems.
- 2.18. Area cleaning for the placement of duct pieces before assembly. Pre assembly of Duct for BOFA system. Seal Welding of duct as per BHEL norms/drawings/documents. Checking of dimensions as per quality plan.
- 2.19. Erection of temporary platforms/supports at boiler floors for duct assembly work.
- 2.20. Pre-assembly, Routing & Erection of Duct from BOFA System to Hot secondary air duct (Left & Right side of furnace) to the extent possible before shutdown.
- 2.21. Erection of duct supports, guides, hangers as per BHEL drawing & site requirement.
- 2.22. Erection of Access doors including access platforms as per drawing or as per site requirement.
- 2.23. Erection of Junction Box (JB's)/LIR/ Local instrument etc... near the BOFA Panels or any other location. Erection of Cable trays & Laying of Cables to the extent possible during pre-shutdown. Precautionary measure must be taken care during laying of cable since boiler will be in running condition. Heated zone should be taken care so that cable damage/ burning can be avoided.

3. Shut down Work

- 3.1. Mechanical Work per boiler :- (Tentative Tonnage to be erected per Unit is nearly 210 MT excluding electrical and C & I)

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

(i) Existing Flame viewing system (FVS) on left & right side water wall to be relocated as per drawing. For relocating and accommodating FVS, necessary arrangement as per drawing has to be carried out by bidder in water wall (approach platform, replacement/ re-erection/ alignment/ welding/ NDT of water wall tube) as per IBR norms/ BHEL FQP/EWS for site weld joints.

I. Wind box / Burner:

- 3.1.I.1. Locking of Coal pipes before removal of FIE / Gate valve from coal pipes.
- 3.1.I.2. Removal / dismantling of all Fuel Inlet Elbows (FIE) from all four corners at all elevations.
- 3.1.I.3. Transportation of FIE's to designated location as decided by BHEL.
- 3.1.I.4. Installation of New or dismantled FIE as decided by BHEL.
- 3.1.I.5. Replacement of coal pipe coupling Fasteners /gaskets & hangers.
- 3.1.I.6. Removal of Oil Guns, Gun Guide Pipes, HEA Ignitor & its guide pipes, Scanner & their Guide pipes. Proper care shall be given while dismantling as these items shall be Re used.
- 3.1.I.7. Transportation & handing over these items to BHEL / customer stores.
- 3.1.I.8. Removal of all Coal Nozzles from coal compartment for all four corners. Replacement of Nozzle tips with new tips & insert nozzles back to burners coal compartments. Scaffolding/ Sky climber required to complete job shall be in contractor scope.
- 3.1.I.9. Replacement of Oil / Air / End Air /CC-OFA nozzle tips for all four corner burners including modification in wind box compartment to suit new designed nozzles.
- 3.1.I.10. Reinstallation of Guide pipes of Oil /HEA/ Scanner. Scaffolding required completing job shall be in subcontractor scope.
- 3.1.I.11. E&C of wind box partition plates, extension plate and side outer panel modification.
- 3.1.I.12. Modification in the wind box SADC dampers by welding of locking plates, shielding plates as per BHEL Drawing. After modification, free rotation of dampers in all compartments must be ensured.
- 3.1.I.13. *Water wall opening bend and seal boxes for CCTV cameras.*
- 3.1.I.14. Scanner Air header modification / Re-routing as per site requirement.
- 3.1.I.15. **After** completion of work, coal pipe locking must be removed and coal pipe hangers cold value must be insured.
- 3.1.I.16. Removal of all temporary supports/structure

****** if any modification required in new nozzle tips at site due to difficulty in reinstallation of guide pipe of OIL/HEA/Scanner same to be executed at site by agency without any cost impact**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

II. DUCT (Hot Air to BOFA) & Structures :-

- 3.1.II.1.** Routing & Erection of Duct from Hot secondary air duct to BOFA System (Left & Right side of furnace) as per drawing & site condition.
- 3.1.II.2.** Supporting of duct as per drawing & site requirement.
- 3.1.II.3.** Erection of duct expansion bellows/pieces & supporting as per drawing & site condition.
- 3.1.II.4.** Buckstay (front & rear) at EI 47075 to be relocated to EI 47250 & modified to link with BOFA Assy. Buckstay (Left & Right) (if Required) at EI 47075 to be removed & replacement with truss assembly for BOFA wind box.(If required)
- 3.1.II.5.** Relocation of Wall blowers at EI 46050 on left & right side (5 Nos each side) to be lowered by 500 mm to clear BOFA ducting. Rerouting of wall blowers steam pipe header & its supports. Radiography of new HP joints as per IBR, rectification of defects observed during radiography.
- 3.1.II.6.** LPI/kerosene test/Gas / Air tightness test of Duct as per BHEL procedure.
- 3.1.II.7.** Welding of insulation fixing components at ducts, fixing of mineral wool as per BHEL Standard.
- 3.1.II.8.** Strengthening/modification of structure as required for carrying out combustion modification (if required). Any structural part modification required to complete the work shall be in scope of bidder.
- 3.1.II.9.** Laying of Insulation/ Acoustic insulation, Refractory & Cladding/ Aluminum sheet as per BHEL norms. Application of castable & pourable refractory for buck stay, wall blowers, peepholes, access doors, burners WW transition tubes etc.
- 3.1.II.10.** Erection of flow meter (Multi port pitot tube) & taping points for CO analyzer.
- 3.1.II.11.** Erection of structural flooring corner platforms as per instruction of BHEL.

III. BOFA Panels:-

- 3.1.III.1.** Transportation of BOFA panels & seal boxes from stores to site.
- 3.1.III.2.** Cutting of Water wall above burner to accommodate new BOFA system (all corner)
- 3.1.III.3.** Fit-up and welding of WW tubes to BOFA Panel tubes & seal boxes for BOFA bend.
- 3.1.III.4.** Radiography of the new HP Joints as per IBR including necessary, rectification of the Defects observed during radiography.
- 3.1.III.5.** Connection welding of BOFA system to newly erected duct.
- 3.1.III.6.** Supporting of BOFA System.
- 3.1.III.7.** Erection of power cylinders for New BOFA system at four elevations in all for corners.
- 3.1.III.8.** Stroke adjustment / tuning of power cylinders. Adjustment / tuning of existing SADC power cylinders.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

- 3.1.III.9.** Lying of Instrument air line from existing header to all newly installed power cylinders & other installed systems as per site requirement.
- 3.1.III.10.** Erection of approach Platform and benches for operating the installed instruments / systems as per drawing and site requirement.
- 3.1.III.11.** Lying of Insulation, Refractory & Cladding/aluminum sheet as per BHEL norms. Application of castable & pourable refractory if required

3.2. Electrical and Control & Instrumentation:-

- I.** E&C of Burner Tilt shear pin failure system, Flame scanner pigtail cable, Furnace bottom ash viewing CCTV cameras.
- II.** Installation of Two (02) nos. of CCTV cameras (High Definition (HD) fixed type) outside the furnace (one on left and right side) at about 10.5 M elevation. Installation of Seal Boxes fitted with sight glass in each side of boiler water walls.
- III.** Installation of Two (02) nos. of CCTV cameras (High Definition (HD) fixed type) **outside** the bottom ash hopper at about 8 M elevations.
- IV.** Erection of Instrument air distribution SS tubing, fittings for SADC/SOFA actuators, corner nozzle
Valve, HEA igniter, Burner tilt power cylinders and SOFA tilt power cylinders.
- V.** Control instrumentation for New BOFA power cylinders, erection of I/P converters.
- VI.** Pneumatic actuators with positioners, pressure switches, flow transmitters, LIE / LIR, Hook ups, BOFA air, erection hardware, impulse tubing/ piping, flow Pitot tube.
Including laying of cables to Junction box. Erection of New Junction Boxes. C&I of all Other work required to complete the work.
- VII.** Erection & Commissioning of CO analyzers at ECO Outlet duct. Erection of approach Platform & benches for CO analyzer. Tapping points for CO analyzers, suitable for Analyzer mounting, shall be made by the contractor at Economizer outlet ducts.
- VIII.** Erection and Commissioning of Air Filter Regulator and pressure switches/ transmitters in SOFA signal airline.
- IX.** Erection and Commissioning of Flow elements (Aero foil) with flow transmitter in SOFA secondary air duct.
- X.** Solenoids and pneumatic tubing for auto purging of SOFA flow element.
- XI.** Instrumentation and control cables, power supply distribution cables, special cables (such as Scanner pig tail cable) along with accessories for interconnection/ Integration of C&I instruments/equipment of system being renovated/upgraded with Existing unit DDCMIS.
- XII.** Branch cable trays up to field Junction boxes for the cables
- XIII.** Instrument air piping from the existing instrument airline to existing and new Equipment /instruments.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

List of components to be dismantled, handed over to customer (in the condition as it is) and re installed for combustion modification is given in chapter XVI of TCC

3.3. Restoration Work:-

"Restoration of site- erection of all removed structure, floor grills, air lines, hand rails, removal of winch, chain pulleys, etc. Re-erection of removed insulation and cladding with the help of hooks and retainer plates. Existing access openings/observation doors are to be retained. Dismantling & Removal of scaffolding and other temporary structures & arrangements made for handling after completion of work & Transportation of removed material and other scraps generated during the work to disposal yard/handing over the same to NTPC customer. **Any other alteration which is done for modification is to be restored in original position without any extra charge.**"

3.4. Commissioning & Performance Guarantee test :-

"Contractor shall provide qualified manpower for testing and commissioning of system. Also, full necessary assistance for conducting performance guarantee test and attending any defects / deficiency observed."

3.5. Paints & Painting:-

"The contractor's scope of work includes **supply of paints and painting of all equipment and structures which are supplied new as per the Employer's standard color coding scheme which shall be furnished to the Contractor.**

3.6. Miscellaneous Work:-

- I. "Contractor will have to provide all necessary T&Ps, IMTE's & Consumables required for successful completion of works in schedule time. T&Ps & IMTEs used by the agency should be duly tested and test certificate from Govt. approved agency must be available at site. Load testing shall also be done at site for tools & tackles. Third party testing of T&Ps is in subcontractor scope.
- II. The tentative list of T&Ps, IMTE's & Consumables to be deployed by bidder is provided in Chapter IV: Facilities in the scope of contractor. The list is only tentative. However, the contractor may be asked to arrange the additional required T&Ps, IMTE's & Consumables at any stage depending upon the job requirement."
- III. All necessary permissions & approvals required as per IBR or any other statutory body shall be obtained by bidder without any additional cost to BHEL.
- IV. ~~Bidder shall have to carry out Hydro test after repair/replacement/modification of water wall tubes for installation of BOFA panels. If failures during hydro test. Contractor shall be responsible for obtaining IBR clearances/approval from CIB.~~
- V. Air and gas tightness test of steam generator enclosure and ductwork for the modified portion shall be in contractor scope.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-II: Scope of Works

4.1. Providing one office attendant and one qualified computer operator round the clock, ~~one laptop/Computer (Latest configuration), Printer cum scanner & photocopier with cartridges, internet connection (Modem)~~ at free of cost, from start till completion of work.

3.7. Terminal Points:-

- Instrument and service air:- at one point in Boiler area (4-6 Ksc)
- Marshalling panel of NTPC DDCMIS.
- 230V Single phase AC UPS and 24V DC power supply feeder from NTPC ACDB and DCDB in CER.
- Marshaling cabinet of NTPC DDCMIS in CER for input/output signals

3.8. Exclusions:-

- Gun maintenance switch box
- LDO oil skid
- Existing pressure gauges in corner skid for oil and atomizing medium.
- Existing Wind box to furnace DP transmitters.
- Furnace Flame viewing system.
- Acoustic Steam Leak Detection system.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-III: Facilities in the scope of Contractor/BHEL

| Sl.No | Description PART I | Scope / to be taken care by | | Remarks |
|-------|--|-----------------------------|--------|---|
| | | BHEL | Bidder | |
| 3.1 | ESTABLISHMENT | | | |
| 3.1.1 | FOR CONSTRUCTION PURPOSE: | | | |
| a | Open space for office (as per availability) | Yes | | Location will be finalized after joint survey with owner |
| b | Open space for storage (as per availability) | Yes | | Location will be finalized after joint survey with owner |
| c | Construction of bidder's office, canteen and storage building including supply of materials and other services | | Yes | |
| d | Bidder's all office equipments, office / store / canteen consumables | | Yes | |
| e | Canteen facilities for the bidder's staff, supervisors and engineers etc. | | Yes | |
| f | Firefighting equipments like buckets, extinguishers etc. | | Yes | |
| g | Fencing of storage area, office, canteen etc. of the bidder | | Yes | |
| 3.1.2 | FOR LIVING PURPOSES OF THE BIDDER | | | |
| a | Open space for labor colony | | Yes | Contractor has to make their own arrangements for labours accommodation (Labour colony) |
| b | Labor Colony with internal roads, sanitation, complying with statutory requirements | | Yes | |
| 3.2.0 | ELECTRICITY | | | |
| 3.2.1 | Electricity For construction purposes of Voltage 415/440 V | | | Chargeable at the prevailing rate of DISCOM |
| a | Single point source | Yes | | At a distance of 500 M from site (Distance is only approximate, it may vary upto an extent depending on site condition) |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-III: Facilities in the scope of Contractor/BHEL

| Sl.No | Description PART I | Scope / to be taken care by | | Remarks |
|-------|--|-----------------------------|------------|---|
| | | BHEL | Bidder | |
| b | Further distribution including all materials, Energy Meter, Cables, switchboards Protection devices and its service etc. | | Yes | |
| c | Duties and deposits including statutory clearances if applicable | | Yes | |
| 3.2.2 | Electricity for the office, stores, canteen etc. of the bidder | | | Chargeable at the prevalent rate of DISCOM |
| a | Single point source | Yes | | At a distance of 500 M from site (Distance is only approximate, it may vary upto an extent depending on site condition) |
| b | Further distribution including all materials, Energy Meter, Protection devices and its service | | Yes | |
| c | Duties and deposits including statutory clearances if applicable | | Yes | |
| 3.2.3 | Electricity for living accommodation of the bidder's staff, engineers, supervisors etc | | Yes | Contractor has to make their own arrangement. |
| A | Single point source | | YES | |
| b | Further distribution including all materials, Energy Meter, Protection devices and its service | | Yes | |
| c | Duties and deposits including statutory clearances if applicable | | Yes | |
| 3.3.0 | WATER SUPPLY | | | |
| 3.3.1 | For Construction purposes: | | | FREE |
| a | Making the water available at single point | Yes | | |
| b | Further distribution as per the requirement of work including supply of materials and execution | | Yes | |
| 3.3.2 | Water supply for bidder's office, stores, canteen etc. | | | FREE |
| a | Making the water available at single point | Yes | | |
| b | Further distribution as per the requirement of work including supply of materials and execution | | Yes | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-III: Facilities in the scope of Contractor/BHEL

| Sl.No | Description PART I | Scope / to be taken care by | | Remarks |
|-------|--|-----------------------------|--------|---|
| | | BHEL | Bidder | |
| 3.3.3 | <u>Water supply for Living Purpose</u> | | | Contractor has to make their own arrangements |
| a | Making the water available at single point | | Yes | |
| B | Further distribution as per the requirement of work including supply of materials and execution | | Yes | |
| 3.4.0 | LIGHTING | | | |
| A | For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area | | Yes | |
| B | For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area | | Yes | |
| C | Providing the necessary consumables like bulbs, switches, post light, mast light, etc... During the course of project work | | Yes | |
| D | Lighting for the living purposes of the bidder at the colony / quarters | | Yes | |
| 3.5.0 | COMMUNICATION FACILITIES FOR SITE OPERATIONS OF THE BIDDER | | | |
| A | Telephone, fax, internet, intranet, e-mail etc. | | Yes | |
| 3.6.0 | COMPRESSED AIR wherever required for the work | | Yes | |
| 3.7.0 | Demobilization of all the above facilities | | YES | |
| 3.8.0 | TRANSPORTATION | | | |
| A | For labors and site personnel of the bidder | | Yes | |
| B | For bidder's equipments and consumables (T&P, Consumables etc.) | | Yes | |

| Sl.No | Description PART II | Scope / to be taken care by | | Remarks |
|-------|----------------------------------|-----------------------------|--------|---------|
| | | BHEL | Bidder | |
| | 3.9.0 ERECTION FACILITIES | | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-III: Facilities in the scope of Contractor/BHEL

| Sl.No | Description PART II 3.9.0 ERECTION FACILITIES | Scope / to be taken care by | | Remarks |
|-------|--|-----------------------------|--------|--|
| | | BHEL | Bidder | |
| 3.9.1 | Engineering works for construction: | | | |
| A | Providing the erection drawings for all the equipment covered under this scope | Yes | | |
| B | Drawings for construction methods | Yes | | |
| C | As-built drawings – where ever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes | | YES | In consultation with BHEL |
| D | Shipping lists etc. for reference and planning the activities | Yes | | " |
| E | Preparation of site erection schedules and other input requirements | | Yes | " |
| F | Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments | Yes | Yes | " |
| G | Weekly erection schedules based on Sl No. e | | Yes | " |
| H | Daily erection / work plan based on Sl No. g | | Yes | " |
| I | Periodic visit of senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every fortnight. | | Yes | Special care shall be given from top management of contractor for this fast track project |
| J | Preparation of preassembly bay | | Yes | |
| K | Laying of racks for gantry crane if provided by BHEL or brought by the contractor/bidder himself | | Yes | |
| L | Arranging the materials required for preassembly | | YES | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps & MMEs to be deployed by Contractor for each Unit

| T&P to be deployed for PART B: Erection and commissioning work | | | | |
|---|---|---|-------------------------|----------------|
| SN | DESCRIPTION | CAPACITY (MINIMUM) | MINIMUM QUANTITY | REMARKS |
| 1 | Mobile Crane/Hydra | 18 MT | 1 | |
| 2 | Hydra/ Crane | 14MT | 2 | |
| 4 | Trailer with Prime Mover | 20 MT | As per Requirement | |
| 5 | Truck/Tractor Trolley | 9 MT | As per Requirement | |
| 10 | TIG Welding Set | As required | As required | |
| 11 | Plasma Cutting M/c. | For cutting up to 10 mm thick Stainless Steel | As required | |
| 12 | 3-Phase Distribution Board with Complete Set Up for Drawl of Construction Power | As required | As required | |
| 13 | Power Cable for drawl of Construction Power | As required | As required | |
| 14 | Pre Heating / Stress Relieving Set (Heating Control Panel, Cables, Heating Elements, Thermometers etc.) | As required | As required | |
| 15 | Radiography Arrangement with Radioactive Isotope Source | Iridium-192 | 2 sets | |
| 20 | Arrangement for UT of higher thickness joints with recording facility | Type USN 50 or equivalent/ upgraded type | As per requirement | |
| 22 | Welding Generator (Electrical) | 300 Ampere rating | 15 No. | |
| 23 | Welding Generator (Diesel Operated) | 300 Ampere rating | 4 No. | |
| 24 | Radiography Film Viewer | As required | As required | |
| 26 | Baking Oven with thermostat and temperature gauge for welding electrodes | As required | As required | |
| 27 | Holding Oven with thermostat and temperature gauge for welding electrodes | As required | As required | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps & MMEs to be deployed by Contractor for each Unit

| | | | | |
|----|--|--|--------------------|--|
| 28 | Portable Oven for welding electrodes | As required | 15 Nos. | |
| 29 | Electric Winch | 5/10 Ton Capacity | 4 | 2 Nos. 5T and 2 Nos. 10T |
| 30 | Electric Winch | 3 Ton Capacity | 4 | |
| 34 | Furnace Maintenance Platform (Sky Climber) | 0.5 MT | 1 | |
| 35 | Hand Winch | 0.5 Ton Capacity | 2 | |
| 36 | Cup Lock Scaffolding | As per requirement | | Required to work above the burner panel i.e. at least up to ht. of 55 Mtrs |
| 36 | Scaffolding Materials with Clamps | Suitable for working at various heights | As per requirement | Adequate qty for parallel working in multiple work fronts. |
| 37 | Profile making M/c | for aluminium sheet cladding work | As required | |
| 38 | Nibbling M/c | | As required | |
| 39 | Shearing M/c | | As required | |
| 40 | Water Pump to lift water to top of boiler | for refractory and other required activities | 1 Set | |
| 41 | Portable Grinding M/c | As required | As required | |
| 42 | Straight Grinder GQ-4/GQ-7 | As required | | |
| 43 | Portable Drilling M/c | As required | | |
| 44 | Chain Pulley Blocks 05MT | | 20Nos. | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps & MMEs to be deployed by Contractor for each Unit

| | | | | |
|----|---|-------------|-------------|--|
| 45 | Chain Pulley Block 03MT | | 10Nos. | |
| 46 | Fire retardant Tarpaulins | As required | As required | |
| 47 | Fire Extinguisher | As required | As required | |
| 48 | DG SET | As required | As required | For continuous/uninterrupted back up power during welding & post weld heat treatment of HP joints. |
| 49 | Tong Tester 10, 20 Or 50 Amp + / - 3 % Accuracy | | as required | |
| 50 | Digital and Analogue Millimeters | | as required | |
| 51 | U Tube Manometer 0-2000 mm Water Column | | as required | |
| 52 | Inclined Manometer 0-50 mm Water Column | | as required | |
| 51 | Calibrated Pneumatic Torque wrench | | 4 nos. | |
| 52 | Bolt Tension Calibrator | | as required | |
| 53 | Dewatering pumps | | as required | |
| 54 | Various sizes of clamps/ fixtures for assembling | | as required | |
| 55 | Portable hardness tester | | as required | |
| 56 | Hardness testing equipment (Equotip or Microdur make) 33 Stress relieving equipment with temperature | | {min 2 nos} | |
| 57 | Magnetic particle testing equipment-DRY & WET Type | | as required | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps & MMEs to be deployed by Contractor for each Unit

| | | | | |
|----|--|-----------------|-------------|---|
| 58 | Temperature recorder for 0-1000C 6/12 points with thermo couples / rods and compensating cable | | as required | Since start of work |
| 59 | Spectrometer for metal testing | | as required | |
| 60 | Alco meter for paint thickness checking | | as required | |
| 61 | Hand Operated Megger 500 / 1000 V | | as required | |
| 62 | Concrete Blocks | | 30 nos. | For making bed of steel structure for checking dimensional accuracy, configuration and minor rectification. |
| 63 | Wooden sleeper 1.5 Mtr length | Since beginning | 50 No's | For material storage at site. |
| 64 | Safety Net | Since beginning | 04 Nos | |

Note: The above list is only indicative for work in one Unit; and not exhaustive. Arrangement for any other T&P required for completion of the job shall be the responsibility of the contractor and shall be arranged by him.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps & MMEs to be deployed by Contractor for each Unit

| T&P For PART A: Material Management | | | | |
|--|--|---------------------------|-------------------------|---|
| SI. No. | DESCRIPTION OF EQUIPMENTS | CAPACITY (MINIMUM) | MINIMUM QUANTITY | REMARKS |
| 1 | HYDRA CRANE CAPACITY- | 12 MT | 01 | To be available from the start of contract period. |
| 2 | TRAILER WITH PRIME MOVER | ADEQUATE CAPACITY | AS PER REQUIREMENT | |
| 3 | TRACTOR TRAILER | 15/20 MT | AS PER REQUIREMENT | |
| 4 | TRUCK | ADEQUATE CAPACITY | AS PER REQUIREMENT | |
| 5 | SLINGS, 'D'-SHACKLES, MAX PULLER. | 01 MT TO 10 MT | AS PER REQUIREMENT | From the start of contract period |
| 6 | SLINGS, 'D'-SHACKLES, MAX PULLER, PULLEY BLOCKS, HYDRAULIC JACKS, ETC ABOVE 10 MT. | AS REQUIRED | AS REQUIRED | WITH TEST REPORTS |
| 7 | TARPAULINS (**) | | As per requirement | Requirement To be finalized at Site in consultation with MM-In charge |
| 8 | SPANNER SETS RING/D | UP TO 56 MM | ONE SET. | From the start of contract period |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: T&Ps & MMEs to be deployed by Contractor for each Unit

MEASURING AND MONITORING DEVICES (MMD):

AS PER REQUIREMENT TO BE FINALIZED AT SITE, SHALL MEET THE REQUIREMENTS AS PER FIELD QUALITY PLAN AND OTHER ERECTION, TESTING RELATED ACTIVITIES.

NOTE:

- 1) ALL THE TOOLS AND PLANTS REQUIRED FOR THIS SCOPE OF WORK, EXCEPT THE TOOLS & PLANTS PROVIDED BY BHEL ARE TO BE ARRANGED BY CONTRACTOR WITHIN THE QUOTED RATES. THE LIST IS SUGGESTIVE IN NATURE. ANY ADDITIONAL T&P REQUIRED TO BE ARRANGED BY THE CONTRACTOR.
- 2) IF ABOVE MENTIONED T & P ARE NOT DEPLOYED IN SPECIFIED TIME BHEL WILL CHARGE TO CONTRACTOR CURRENT MARKET RATE + 30 % OVERHEADS FOR NON AVAILABILITY T&P OR LEVY A DAY WISE PENALTY FOR NON DEPLOYMENT OR DELAYED DEPLOYMENT.
- 3) IF THE WORKS GET DELAYED DUE TO NON-AVAILABILITY OF T&P, BHEL RESERVES THE RIGHT TO GET THE WORK DONE AT THE RISK AND COST OF CONTRACTOR WITHIN PREJUDICE TO RIGHTS OF BHEL AS IN GCC.
- 4) THE MANUFACTURING YEAR OF ALL MAJOR T&P's DEPLOYED BY THE CONTRACTOR SHOULD NOT BE MORE THAN 10 YEARS AS ON DATE OF DEPLOYMENT. IF AT ANY MOMENT OF TIME DURING THE EXECUTION OF WORK, ANY CRANE IS FOUND TO BE NOT IN A GOOD WORKING CONDITION AND NON-PERFORMING AT DESIRED MINIMUM CAPACITY, AS CERTIFIED BY BHEL ENGINEER, THE CONTRACTOR SHALL DEPLOY ANOTHER CRANE IN GOOD WORKING CONDITION WITH MINIMUM DESIRED CAPACITY. IF CONTRACTOR FAILS TO DEPLOY THE SAME WITHIN 10 DAYS, BHEL WILL RECOVER NON-REFUNDABLE PENALTY PER DAY OF DELAY IN THE FOLLOWING MANNER-
 - a) IN RESPECT OF 18 MT CRANE- @ RS 3000/-
 - b) IN RESPECT OF 8-12 MT CRANE- @ RS 1000/-

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – V: T&Ps & MMEs to be deployed by BHEL on sharing basis

LIST OF T&P TO BE PROVIDED BY BHEL FREE OF HIRE CHARGES ON SHARING BASIS:

| SL NO | DESCRIPTION & CAPACITY OF T&P | QUANTITY | REMARKS |
|-------|---|----------|----------------------------|
| 1 | Air Leak Test equipment with all auxiliaries. | 01 SET | For leakage test of Ducts. |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

6.1 TIME SCHEDULE & MOBILIZATION

6.1.1 INITIAL MOBILIZATION

After receipt of LOI, Contractor shall discuss with Project Manager / Construction Manager regarding initial mobilization. Contractor shall mobilize necessary resources within 1 weeks of issue of letter of intent or as per the directive of Project Manager / Construction Manager. Such resources shall be progressively augmented to match the schedule of milestones and commissioning.

6.1.2 MOBILIZATION FOR ERECTION, TESTING, ASSISTANCE FOR COMMISSIONING, OVERHAULING ETC.

The activities for Overhauling shall be started as per directions of Site In charge of BHEL. Contractor shall mobilize further resources (in addition to those required for activities under clause no. 6.1.1) as per requirement to commence the work of Material Receipt, Unloading, Storage, Erection, Commissioning & Testing of Combustion Modification System and progressively augment the resources to match schedule of the project.

SHUTDOWN TIME SCHEDULE OF BOILER IS THE ESSENCE OF THIS CONTRACT. CONTRACTOR SHOULD Complete DISMANTALING & ERECTION WORK WITHIN 35 DAYS

6.1.3 CONTRACT PERIOD

1) Part A: Material Management and Material Handling Work

1.1) Contract Period: For Material Receipt, Unloading, Storage, Preservation, Handling and Conservation of the equipment at Site: - - **08 Month On receipt of LOI/ BHEL intimation.**

1.2) Start of Contract: From the date of Unloading of First Consignment at Site

2) Part B: Erection and Commissioning of combustion modification work (For Each Unit)

2.1) Dismantling and Erection Period: Dismantling and Erection of Combustion modification system with shutdown period of 35 days.

2.2) Commissioning, Testing & completion of facilities: - 60 days from completion of Sl. No.2.1 (for Each Unit)

2.3) Start of Contract Period: From the date of handing of Unit to Bidder after Shutdown

The period from the commencement of preparatory work for erection till the actual "start of contract period" shall not be reckoned for the above purpose.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

Sub-contractor will be required to work on 24 hour (round the clock) basis.

As informed by NTPC, the tentative shutdown of unit 7 (500 MW) is scheduled in last week of April'21.

The above shutdown period is tentative and shutdown period may be changed by customer according to their annual plan, however, sufficient time will be given to bidder for mobilization and start of pre-shutdown works. Contractor has to mobilize the resources accordingly and complete the job.

Any change in shutdown period as per annual plan of customer will be abide by agency and entire work is to be completed in line of customer shutdown requirement.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Terms of Payment

7.1 Payment Terms:-

7.1.1 Payment Terms for PART-A (Material Handling and Material Management Work)

| PART-A: Material Handling and Material Management Work | | |
|---|--|---------------------|
| SL NO | Description of Activity | % of payment |
| 7.1 | UNLOADING FROM TRUCKS/TRAILERS | |
| 7.1.1 | UNLOADING, SHIFTING TO OPEN / COVERED STORES | 30% |
| 7.1.2 | UPDATION OF RECEIPT DETAILS, IN STORE MATERIAL REGISTERS/BHEL MM PACKAGE SYSTEM | 20% |
| 7.1.3 | STACKING AND VERIFICATION | 20% |
| 7.1.4 | UPDATION OF VERIFICATION DETAILS IN MATERIAL STOCK REGISTERS, SUBMISSION OF REPORTS AS PER SPECIFIED FORMATS FOR SHORTAGE/OPEN DELIVERY, LODGING OF POLICE REPORTS IF REQUIRED, DOCUMENTS FOR INSURANCE CLAIMS ETC, AND PREPARATION OF MATERIAL RECEIPT CERTIFICATES IN PRESCRIBED FORMATS WHERE EVER APPLICABLE | 25% |
| 7.1.5 | COMPLETION OF CONTRACTUAL OBLIGATIONS | 5% |
| | Total | 100% |
| 7.2 | OTHERS MISCELLANEOUS PAYMENT: (Contractual Obligation) | |
| | % from every RA Bill to be paid only after satisfactory completion otherwise forfeited | |
| 7.2.1 | REMOVAL OF GRASS/WEEDS AND OTHER PLANT GROWTH IN THE STORAGE AREA | 1% |
| 7.2.2 | HOUSEKEEPING & CLEANING OF ALL CLOSED SHEDS | 1% |
| 7.2.3 | PRESERVATION planned for the month | 1% |
| 7.2.4 | Safe working & availability of adequate illumination at the place of work | 1% |
| 7.2.5 | Implementation of E-stores for records/data | 1% |
| 7.3 | Cranes/Hydra | |
| | Payment for Cranes shall be made on monthly basis as per the awarded monthly rate against each crane. No other payment shall be paid for the other / additional T & Ps deployed for carrying out the work as per the scope of this tender. | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Terms of Payment

7.1.2 Payment Terms For PART-B (Erection and Commissioning)

| SL NO | Contract (Main Package) | Boiler | | | Piping | | INSULATION |
|----------|---|-----------|----------------|--|--------------------|------------------|---|
| | | Structure | Pressure Parts | Non Pressure Parts (upto ESP inlet Funnel) | Hangers & Supports | Temporary Piping | 1) Castable & Pourable 2) Iron Components 3) Wool mattresses 4) Aluminium sheeting |
| I | PRO RATA PAYMENTS (85%) | | | | | | |
| 1.1 | ON PRE-ASSEMBLY WHEREVER APPLICABLE (IF NOT APPLICABLE, THIS PORTION SHALL BE CLUBBED WITH PLACEMENT IN POSITION) | 20 | 20 | 25 | 15 | -- | -- |
| 1.2 | PLACEMENT IN POSITION | 15 | 10 | 10 | 25 | -- | 50 |
| 1.3 | ALIGNMENT | 15 | 15 | 10 | 15 | -- | 15 |
| 1.4 | WELDING/BOLTING/FIXING | 15 | 20 | 15 | 30 | | 20 |
| 1.5 | COMPLETION OF NON DESTRUCTIVE EXAMINATION & STRESS RELIEVING/ HEAT TREATMENT (if not applicable, then this portion to be paid along with welding) | 5 | 10 | -- | -- | -- | -- |
| 1.6 | On Drum Lifting | -- | -- | -- | -- | -- | -- |
| 1.7 | COMPLETION OF ATTACHMENT WELDING, FIN WELDING, SUPPORTS | -- | 5 | -- | -- | -- | -- |
| 1.8 | COMPLETION OF ROOF SKIN CASING | -- | 5 | -- | -- | -- | -- |
| 1.9 | INSTALLATION OF TEMPORARY PIPING | -- | -- | -- | -- | 60 | -- |
| 1.10 | DISMANTLING OF TEMPORARY PIPING, EDGE PREPARATION AND RETURN TO BHEL STORES, AREA CLEANING | -- | -- | -- | -- | 25 | -- |
| 1.11 | HANGERS & SUPPORTS ETC WHEREVER NECESSARY AS PER DRG | -- | -- | 25 | -- | -- | -- |
| 1.12 | COMPLETION OF FURNACE ALIGNMENT AND FIRE BALL CHECKING | 5 | -- | -- | -- | -- | -- |
| 1.13 | COMPLETION OF BACK PASS ALIGNMENT | 5 | -- | -- | -- | -- | -- |
| 1.14 | COMPLETION OF VIBRATION SNUBBERS, MECHANICAL SPACERS, CASSETTE BAFFLES, STEAM COOLED SPACERS | 5 | -- | -- | -- | -- | -- |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Terms of Payment

| | | | | | | | |
|-----------|--|-----------|-----------|-----------|-----------|-----------|-----------|
| 1.15 | COMPLETION OF HOPPERS ALONG WITH ALL DOORS, HEATING ELEMENTS, POKING DOORS, ETC | -- | -- | -- | | | -- |
| 1.16 | COMPLETION OF INNER, OUTER ROOF INSULATOR HOUSING, RECTIFIER TRANSFORMERS, PENT HOUSE MONO RAILS, HOISTS ETC | -- | -- | -- | -- | -- | -- |
| 1.17 | ERCTION OF EMITTING AND COLLECTING RAPPING SYSTEM WITH ALL DRIVES | -- | -- | -- | -- | -- | -- |
| 1.18 | EQUIPMENT TRIAL OPERATION | -- | -- | -- | -- | -- | -- |
| 1.19 | HYDRAULIC TEST OR PNEUMATIC TEST | -- | -- | -- | -- | -- | -- |
| 1.20 | FLOATING OF LINES, FINAL ADJUSTMENT OF SUPPORTS FOR COLD AND HOT VALUES (if not applicable, this portion to be clubbed along with hydraulic test/pneumatic test) | -- | -- | -- | -- | -- | -- |
| | | | | | | | |
| | TOTAL FOR PRO RATA PAYMENTS (TOTAL 85%) | 85 | 85 | 85 | 85 | 85 | 85 |
| II | STAGE/MILESTONE PAYMENTS (15%) | | | | | | |
| 2.1 | AIR & GAS TIGHTNESS TEST | — | -- | - | -- | -- | -- |
| 2.2 | GAS DISTRIBUTION TEST | — | — | — | | | — |
| 2.3 | CHARGING OF ESP FIELDS | — | — | — | — | — | — |
| 2.4 | COMPLETION OF AIR & GAS TIGHTNESS TEST FOR FURNACE | -- | 1 | 4 | 2 | -- | -- |
| 2.5 | BOILER HYDRAULIC TEST (DRAINABLE) | -- | 5 | -- | 2 | -- | -- |
| 2.6 | BOILER HYDRAULIC TEST (NON DRAINABLE) | -- | | -- | — | -- | -- |
| 2.7 | Reheater Coils Hydraulic Test | -- | | -- | — | -- | -- |
| 2.8 | Clean Air Flow test | -- | -- | -- | — | -- | -- |
| 2.9 | Boiler Light Up | -- | | | — | -- | — |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Terms of Payment

| | | | | | | | | |
|--|--|------------|------------|------------|------------|------------|------------|----|
| 2.10 | ABO | -- | -- | -- | 1 | | | -- |
| 2.11 | Steam Blowing | -- | -- | -- | 1 | -- | -- | -- |
| 2.12. | SVF | -- | -- | -- | 1 | -- | -- | -- |
| 2.13 | Oil Flushing (TG) | -- | -- | -- | 1 | -- | -- | -- |
| 2.14 | Barring Gear (TG) | -- | -- | -- | 1 | -- | -- | -- |
| 2.15 | Rolling and Synchronisation | -- | -- | -- | 1 | -- | -- | -- |
| 2.16 | Coal Firing | -- | -- | -- | 1 | -- | -- | -- |
| 2.17 | Full Load | -- | -- | -- | 1 | -- | -- | -- |
| 2.18 | Trial Operation of Unit | -- | | | 1 | -- | -- | -- |
| 2.19 | Completion of sheet covering for Boiler roof, burner roof, lift shaft cladding, completion of gutters | -- | -- | -- | 1 | -- | -- | -- |
| 2.20 | Completion of all drains and vents to respective locations and placement of instrument sensors after steam blowing | -- | -- | -- | 1 | -- | -- | -- |
| 2.21 | Painting | 6 | -- | 2 | 1 | -- | -- | -- |
| 2.22 | Area cleaning, temporary structures cutting/removal and return of scrap | 2 | 2 | 2 | 3 | -- | 4 | |
| 2.23 | Punch List points/pending points liquidation | 3 | 3 | 3 | 3 | -- | 4 | |
| 2.24 | Submission of 'As Built Drawings' | -- | -- | -- | 1 | -- | -- | -- |
| 2.25 | Material Reconciliation | 3 | 3 | 3 | 3 | 15 | 4 | |
| 2.26 | Completion of Contractual Obligation | 1 | 1 | 1 | 2 | | 3 | |
| TOTAL FOR STAGE/MILESTONE PAYMENTS (15%) | | 15 | 15 | 15 | 15 | 15 | 15 | |
| TOTAL I + II | | 100 | 100 | 100 | 100 | 100 | 100 | |
| *INCLUDING NDE AND SR/HT WHERE EVER APPLICABLE (IF APPLICABLE, | | | | | | | | |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Terms of Payment

| | | | | | | | |
|--|-------------------|--|--|--|--|--|--|
| | WEIGHTAGE OF 10%) | | | | | | |
|--|-------------------|--|--|--|--|--|--|

Note:

1. Penalty of 1% per day of the total contract value will be levied for improper mobilization of man power and 1% per day for T & P and consumables separately subject to maximum 10% of the contract value shall be deducted from contractor 's bill
2. **LIQUIDATED DAMAGES/PENALTY:** Liquidated Damages for Extension of Unit Shut down time
If the Contractor fails to successfully complete the scope of dismantling and erection for each of the units within 35 days from the date of commencement of shutdown due to reasons attributable to the contractor, then the Contractor shall pay to the Employer as liquidated damages, and not as penalty, a sum calculated at the following rates.

| | |
|---|--|
| A sum of INR 44,525 (Indian Rupees Forty Four Thousand Five Hundred Twenty Five only) | for each day of extension in shutdown period for each unit under the package |
|---|--|

In case the shutdown is extended due to reasons attributable to NTPC/BHEL, then the provision of Liquidated Damages for extension of unit Shut down Time will not be applicable for the corresponding period.

Maximum Deduction for Liquidated damages for delay: The total amount of liquidated damages for delay in completion of facilities and extension in shutdown period combined together will be subject to a maximum of five percent (5%) of the total Contract Price of E&C price individual unit.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes & Other Duties

8.0 TAXES, DUTIES, LEVIES (Rev 14 dated 09/10/2020)

- 1) All taxes excluding GST, GST Cess & BOCW Cess **but including, Royalties, fees, license, deposits, commission, any State or Central Levy and other charges whatsoever, if any, shall be borne by you and shall not be payable extra.**
- 2) Any increase of the taxes excluding GST, GST Cess & BOCW Cess, at any stage during execution including extension of the contract shall have to be borne by the contractor. Quoted/ accepted rates/ price shall be inclusive of all such requirements. Please note that since GST on output will be paid by BHEL separately as enumerated below, your quoted rates/ price should be after considering the Input Credit under GST law at your end.
- 3) **GST :**
The successful bidder shall furnish proof of GST registration .GST along with Cess (as applicable) legally leviable & payable by the successful bidder as per GST Law, shall be paid by BHEL. Hence Bidder shall not include GST along with Cess (as applicable) in their quoted price.
- 4) GST charged in the Tax Invoice/Debit note by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return
- 5) E-invoicing under GST has been implemented with effect from 1st October 2020 for all the taxable persons having turnover more than the threshold limit in any preceding financial year from 2017-18 onwards. Therefore, for all the taxable persons falling under the purview of E-invoice, it is mandatory to mention a valid unique Invoice Reference No. (IRN) and QR code as generated from E-Invoicing portal of the Government for the purpose of issuing a valid Tax Invoice. Only an E-invoice issued in the manner prescribed under rule 48(4) of CGST Rules shall be treated as valid invoice for reimbursement of GST amount.
If the successful Bidder is not falling under the purview of E-Invoicing then he has to submit a declaration in that respect along with relevant financial statements.
- 6) Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred there under) wherein the 'Bill To' details will as below:
BHEL GSTN – As per Annexure -1
NAME -- Bharat Heavy Electricals Limited
ADDRESS – Site address

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes & Other Duties

- 7) Bidder to immediately intimate on the day of removal of Goods (in case of any supply of goods) to BHEL along with all relevant details and a scanned copy of Tax Invoice to below email ids to enable BHEL to meet its GST related compliances :-
Email id ---- to be intimated later on.
In case of delay in submission of the abovementioned documents on the date of dispatch, BHEL may incur penalty /interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from the successful bidder, if such delay is not attributable to BHEL.
- 8) In case of raising any Supplementary Tax Invoice (Debit / Credit Note) Bidder shall issue the same containing all the details as referred to in Section 34 read with Rule 53.
- 9) Bidder shall note that in case GST credit is delayed/ denied to BHEL due to delayed / non receipt of goods and /or tax invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from the vendor along with interest levied / leviable on BHEL, as the case may be.
- 10) Bidder shall upload the Invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law , GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the bidder along with interest levied / leviable on BHEL.
- 11) Way Bill: Successful Bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract.

The Bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit/ Way Bill, if required, shall be arranged by the contractor and BHEL will not supply any Road Permit/ Way Bill for this purpose.

- 12) **New taxes and duties**:-Any New taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period including extension, if the same is not attributable to you, shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.

Benefits and/or abolition of all existing taxes must be passed on to BHEL against new Taxes, if any, proposed to be introduced at a later date.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes & Other Duties

In case any new tax/levy/duty etc. becomes applicable after the date of bidder's offer but before opening of the price bid, the bidder must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of the price bids. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.

- 13) For transportation work, bidder shall declare in his quotation whether he is registered under GST, if yes, whether he intends to claim GST on forward charge basis. In absence of this declaration, BHEL will proceed further with the assumption that bidder intends not to claim GST on forward charge basis. However, in case of GST registered transporter, the amount to the extent of goods and service tax will be retained till BHEL avails the credit of GST. Further, transporter shall issue tax invoice which inter alia includes gross weight of the consignment, name of the consigner and the consignee, registration number of vehicle in which the goods are transported, details of goods transported, details of place of origin and destination, GSTIN of the person liable for paying tax whether as consigner, consignee or goods transport agency, and also containing other information as mentioned under rule 46.
- 14) **TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills unless exemption certificate from the appropriate authority/ authorities is furnished.**
- 15) **TDS under GST shall be deducted at prevailing rates on applicable value from the running bills.**
- 16) **TCS under Income Tax 1961 has been implemented with effect from 1st October 2020 for every seller having turnover more than threshold limit during financial year immediately preceding financial year in which the sale of goods is carried out, who receives any amount as consideration for sale of any goods of the value or aggregate of such value exceeding threshold limit other than export of goods or who is already covered under other provision of section 206C, collect from the buyer, TCS as per applicable rates of the sale consideration exceeding threshold limit subject to following conditions**
 - i. Buyer shall be as per clause (a) of section 206C- (1H)
 - ii. Seller shall be as per clause (b) of section 206C- (1H)

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes & Other Duties

iii. No TCS is to be collected, if the seller is liable to collect TCS under other provision of section 206C or the buyer is liable to deduct TDS under any provision of the Act and has deducted such amount.

If Successful Bidder is falling under the purview of TCS then he has to submit a declaration in that respect along with relevant financial statements before the start of work or if bidder is falling under preview of TCS during the work in progress then bidder is compulsorily required to submit relevant financial statement in the beginning of the respective FY.

For TCS claim, vendor has to submit relevant documents required as per Income Tax Act.

17) Refer Annexure – 2 for BOCW Act & Cess Act.

ANNEXURE-1

State wise GSTIN no.s of BHEL

| Sl. No | Projects under state | GSTIN |
|--------|----------------------|-----------------|
| 1 | Andhra Pradesh | 37AAACB4146P7Z8 |
| 2 | Bihar | 10AAACB4146P1ZU |
| 3 | Chhattisgarh | 22AAACB4146P1ZP |
| 4 | Gujarat | 24AAACB4146P1ZL |
| 5 | Jharkhand | 20AAACB4146P5ZP |
| 6 | Madhya Pradesh | 23AAACB4146P1ZN |
| 7 | Maharashtra | 27AAACB4146P1ZF |
| 8 | Orissa | 21AAACB4146P1ZR |
| 9 | Telangana | 36AAACB4146P1ZG |

ANNEXURE-2

BOCW Act & Cess Act

Bidder may please note that the sub-contractor/bidder of BHEL engaging building or construction worker in connection with building or other construction work, are required to follow the procedures enumerated below:

1. It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes & Other Duties

2. It shall be sole responsibility of the contractor engaging Building Workers in connection with the building or other construction works in the capacity of employer to apply and obtain registration certificate specifying the scope of work under the relevant provisions of the Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 from the appropriate Authorities.
3. It shall be responsibility of the contractor to furnish a copy of such Registration Certificate within a period of one month from the date of commencement of Work.
4. It is responsibility of the contractor to register under the Building and other Construction Workers' Welfare Cess Act, 1996 and deposit the required Cess for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 at such rate as the Central Government may , by notification in the Official Gazette, from time to time specify. However, before registering and deposit of Cess under the Building and other Construction Workers' Welfare Cess Act, 1996, the contractor will seek written prior approval from the Construction Manager.
5. It shall be sole responsibility of the contractor as employer to get registered every Building Worker, who is between the age of 18 to 60 years of age and who has been engaged in any building or other construction work for not less than ninety days during the preceding twelve months as Beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996.
6. It shall be sole responsibility of the contractor as employer to maintain all the registers, records, notices and submit returns under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.
7. It shall be sole responsibility of the contractor as employer to provide notice of poisoning or occupation notifiable diseases, to report of accident and dangerous occurrences to the concerned authorities under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the rules made thereunder and to make payment of all statutory payments & compensation under the Employees' Compensation Act, 1923.
8. It shall be the responsibility of the sub-contractor as employer to make payment/deposit of applicable cess amount on the extent of work involving building or construction workers engaged by the sub-contractor within a period of one month from the receipt of payment. It shall also be responsibility of the Contractor to furnish BHEL on monthly basis, Receipts/ Challans towards Deposit of the Cess under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder along with following statistics :

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes & Other Duties

- (i) Number of Building Workers employed during preceding one month.
- (ii) Number of Building workers registered as Beneficiary during preceding one month.
- (iii) Disbursement of Wages made to the Building Workers for preceding wage month.
- (iv) Remittance of Contribution of Beneficiaries made during the preceding month

9. BHEL shall reimburse the contractor the Cess amount deposited for the purposes of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 under the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder. However, BHEL shall not reimburse the Fee paid towards the registration of establishment, fees paid towards registration of Beneficiaries and Contribution of Beneficiaries remitted.

10. It shall be responsibility of the Building Worker engaged by the Contractor and registered as a beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 to contribute to the Fund at such rate per mensem as may be specified by the State government by notification in the Official Gazette. Where such beneficiary authorizes the contractor being his employer to deduct his contribution from his monthly wages and to remit the same, the contractor shall remit such contribution to the Building and other construction Workers' Welfare Board in such manner as may be directed by the Board , within the fifteen days from such deduction.

11. Bidders may please note that though the quoted price is exclusive of BOCW (which will be reimbursed by BHEL as per sub-clause 9 above) , however, If at any point of time during the contract period, non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder is observed, BHEL reserves the right to deduct the applicable cess (1%) on the contract value and penalty (if any, imposed by Cess Authorities) from the payables on account of non-compliance.

12. The contractor shall declare to undertake any liability or claim arising out of employment of building workers and shall indemnify BHEL from all consequences / liabilities / penalties in case of non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- IX : Special Conditions of Contract

SPECIAL TERMS AND CONDITIONS:-

1. The bidder shall submit following documents to the BHEL Engineer in charge before starting of the work at site:-
 - a) Valid labor license of total Nos. of labors.
 - b) Valid labor Insurance policy to cover all the workers & experts.
 - c) Medical Fitness Certificate of each worker issued by registered medical practitioner.
 - d) A photocopy of employment card issued to each worker as per format prescribed in factory rules.
 - e) List of safety appliance provided by the contractor to their workers with receipt.
 - f) Valid test certificate issued by competent authority as per factory rules for the T&P (like pulling / lifting devices, slings, machines etc.) to be utilized at site.
 - g) List of personnel's and workers deputed / deployed along with their full address proof, Police verification etc., shall be get done of his workers by the contractor.
 - h) Submission of Indemnity Bond.
2. Subcontractor should assure that the repair of the equipment covered in the scope of this offer will be conducted with the best of skills and know how available with Subcontractor and in conformance with the clearances and adjustments set forth in manufacturer's drawing instruments and other information's furnished to Subcontractor.
3. The boiler shall be erected as per relevant provisions of latest Indian Boiler Regulations (IBR) and amendments/addendums thereof, if any.
4. Welding of high pressure joints shall be done by IBR certified high pressure welders who have been permitted by CIB of state concerned for deployment at the site of work.
5. Before any welder is engaged on work, he shall be tested and qualified by BHEL/ customer, though they may possess the IBR/other certificate. BHEL reserves the right to reject any welder without assigning any reason. All the expenditure in testing/qualification of the Contractor's welder shall be borne by Contractor.
6. All the recorded/graphs for heat treatment/NDT shall be handed over to BHEL/ IBR authorities and due clearances obtained.
7. Radiography inspection of welds shall be performed in accordance with requirements and recommendation of BHEL Engineer. The minimum quantum of radiographic inspection shall be as per provision of IBR/BHEL's erection documents. They may, however be increased depending upon the performance of the individual welder at the discretion of BHEL Engineer/Boiler inspecting authority.
8. The Contractor shall leave certain gaps and openings while doing the work as per the instructions of BHEL Engineer to facilitate inspection by boiler inspector or during commissioning to fix gauges, fittings, instruments etc. these gaps will have to be finished as per drawings at later date by the Contractor at his cost.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- IX : Special Conditions of Contract

9. All the work shall be carried out as per the instructions of BHEL engineer. BHEL engineer's decision regarding correctness of the work and method of working shall be final and binding on the contractor.
10. The sub-contractor has to carry out Erection of Scaffolding, Platforms, Approaches as required including supply of all scaffolding materials and Dismantling of the same on completion of work.
11. **Transportation of dismantled components, scraps & debris generated and other materials removed to disposal yard/stores on day to day basis. After completion of work, cleaning & shifting of all type of scrap from site to scrap yard and Transportation balance/surplus materials to store.**
12. **Erection of Temporary Structures/Supports as required and restoration of same after completion of work. The erection of platforms wherever required for approaching to the different types of instruments, pneumatic actuator and electrical actuator etc. shall be covered under the scope of work**
13. Dismantling of Temporary erected Structures/Supports without damaging it and its transportation to stores for use in next unit. The erection of platforms wherever required for approaching to the different types of instruments, pneumatic actuator and electrical actuator etc. shall be covered under the scope of work.
14. Erection, Assembly, Alignment, Matching, Welding, Cutting, Grinding, Drilling, Connection, Testing and other associated works of Materials supplied for various equipment & systems for subject work by various Units including any minor rectification, modification, adjustment, fabrication, matching, machining etc. of the supplied materials (without any extra cost to BHEL).
15. DPT, MPI, UT, Radiography, SR & Heat Treatment of HP Joints, Critical welds and other components as per BHEL norms/FQP/EWS.
16. Any Modification, Dismantling, Assembly, Servicing and associated works in existing equipment, structures, assemblies, piping, supports, etc. as required for retrofitting of new materials.
17. Application of Insulation, Refractory & Cladding as per BHEL norms including curing of the refractory.
18. Testing and commissioning of all equipment & systems including installation of testing equipment, tapping points etc. and rectification of defects observed including replacement/re erection/rectification of components as required.
19. Necessary assistance for other Tests of Equipment & Systems, Boiler Light Up and other pre commissioning & commissioning activities and rectification of defects observed including replacement/re erection/rectification of components as required.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- IX : Special Conditions of Contract

20. Handing Over of the system to the customer after successful completion of work including Commissioning Trial Operations.
21. All works are to be carried out as per drawings and as per instruction of BHEL Engineer and all necessary adjustments, setting, alignment, testing and other associated works shall be carried out as per drawings and as per instruction of BHEL Engineer.
22. Daily work planning, scheduling & reviewing of work will be done by the bidder every morning & evening and program/report must be submitted on daily basis to EIC. Bidder also to submit the progress exception report. BHEL also submit filled protocols duly signed every day / after completion of work.
23. The sub-contractor shall arrange accommodation, transport, medical, sanitary, safety and other arrangements for his all Manpower at their own cost.
24. The sub-contractor must maintain proper system of documentation for Quality, Safety, HSE and other aspects so as to fulfill the requirement of ISO, OHSAS, 5S, SA 8000 and other National/International Standards
25. All welding electrode (special type also) required for the welding will be bidder's scope.
26. Subcontractor must prepare PERT CHART/BAR CHART. Daily monitoring will be done jointly and log sheets of important activities should be noted down and signed jointly.
27. The contractor will attend contributory to faulty and poor workmanship during commissioning and trial run of the equipment.
28. **Round the clock working under expert supervision shall be ensured by the contractor by deploying sufficient manpower in shifts.**
29. It is the responsibility of contractor to keep the plant, equipment, machinery and surrounding area clean.
30. The names of working persons like Site in-charge, supervisors, foreman, main fitters to be deployed during the job with full details has to be submitted stating their area of work and experience and specialization of the work to site in-charge before the start of work. BHEL may ask to change/delete the person not found suitable for the work at any point of time during execution of job. For any addition and deletion of the working person prior permission from BHEL shall be taken.
31. Subcontractor has to ensure that all the key persons must continue till completion of job.
32. Mobilization of full strength shall be done **within 07 days on receipt of LOI/ BHEL intimation.**
33. Work distribution sheet for all the workers/supervisors deployed shall be submitted to BHEL one day in advance on daily basis.
34. Subcontractor should mobilize additional resources such as plant, equipment's, material as may be required by site in-charge to improve the progress of the work if the progress of the work is not satisfactory.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- IX : Special Conditions of Contract

35. Subcontractor should get registered under relevant sales tax and or work contract Act (VAT) where the jobs are executed.
36. One administrative personnel to control the resources and attendance of the workers to be ensured.
37. Contractor shall arrange certified HP welder for welding job as required whose welding test will be conducted.
38. Argon, Oxy- Acetylene gas shall be arranged by the contractor with cutting/welding set / argon welding set and other welding appliances.
39. If the duration of work continues beyond stipulated period due to any reason, no claim for compensation will be entertained.
40. The work details are brief & for Subcontractor knowledge only. Subcontractor will have to do all the related works as per requirement.
41. The contractor will be responsible to pay the damages to the property of NTPC or individual caused by his worker during the course of contract. If the contractor fails to pay the same it will be recovered from his bill.
42. No compensation claimed for idle labor for any reason will be entertained by BHEL.
43. All general tools and plants for execution of the work will have to be arranged/ maintained by the contractor at his own cost & risk.
44. In normal course, the interpretation of the under signed on any matter or decision given by him on any disputable points will be final and binding on the contractor.
45. Successful bidder is to obtain labor license before the start of the work.
46. Successful bidder is to obtain necessary "No Dues" certificate before de-mobilization from site.
47. Successful bidder has to arrange Site mobile recharge till the site closing.
48. Sufficiently adequate man power T&P and other resources should be mobilized by the contractor to operate round the clock work progress with standby technicians to be deployed immediately if need arises. Offer should be submitted considering these requirements.
49. Adequate numbers of tarpaulin are to be arranged by the sub-contractor for covering of various equipment during insulation removal / application.
50. Transportation of material required during overhauling from central work shop/store to site is in the scope of bidder.
51. **Water shall be free and provided at a single point. For electricity, the charges only for the actual energy consumed by the Contractor shall be recovered by the Employer based on prevalent rate of DISCOM.**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- IX : Special Conditions of Contract

To meet the construction power requirement of the Combustion Modification package, the Employer shall provide Two Number 415V feeders in LT switchgears. The Contractor shall extend supply from these Construction power feeders to meet the construction power requirements at the various locations included in the Contractor's scope through suitably rated Isolation Transformers along with LT distribution boards as per requirement. LT Packaged Sub-stations with isolation transformers may also be used for this purpose. Suitable metering arrangement long with associated Instrument transformers and Metering Cubicles meeting the DISCOM requirements shall be provided by the Contractor at each Construction power feeder, for the measurement of actual energy consumed by the Contractor.

The charges only for the actual energy consumed by the Contractor shall be recovered by the Employer based on prevalent rate of DISCOM. Supply, erection, testing and commissioning of all equipments as required for further distribution for meeting the construction power requirements shall be in the Contractor's scope. All necessary statutory requirements for charging construction power of Contractor's network shall be in the Contractor's scope. Construction power supply network is a temporary arrangement which shall be used during the project construction phase. To meet this requirement, the equipments may be arranged by Contractor either by shifting their existing equipments at other installation or by fresh procurement, which may be taken back after commissioning of the project.

Even though the Employer shall make all efforts to maintain a continuous supply of construction power, the same is not guaranteed and Employer shall not be responsible for any loss or delays which the contractor may suffer on this account. Also the Employer shall not entertain any claim for exemption/reduction of liquidated damages for delay in execution of the contract due to irregular power supply. Contractor shall arrange/provide necessary backup arrangement on his own for uninterrupted power supply. The Contractor shall maintain a minimum drawl power factor as per DISCOM regulations for their substations, and all such devices for maintaining power factor shall be under the scope of contractor. All temporary wiring must comply with local regulations and will be subject to Employer's inspection and approval before connection to supply. Power supply shall not be provided for use in labor and staff colony.

52. AT LEAST TWO (02) EXPERTS OF BOILER AREA TO BE DEPLOYED BY THE CONTRACTOR FOR COMPLETE DURATION OF CONTRACT TILL THE COMPLETION OF E&C OF COMBUSTION MODIFICATION SYSTEM
53. CONTRACTOR SHOULD ENGAGE AT LEAST ONE CERTIFIED SAFETY ENGINEER/ SAFETY OFFICER IN EACH SHIFT DURING THE CONTRACT PERIOD.

NOTE:

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- IX : Special Conditions of Contract

1. The specific work which is not mentioned in the scope of work but required to be carried out for completion of subject work is in the bidder's scope.
2. Decision of BHEL site in charge regarding interpretation of the scope of work shall be final.

3.2. LIAISON WITH ALL STATUTORY AUTHORITIES:

- a) Compliance of statutory provisions, whether mentioned in this contract or not shall be binding on the contractor.
- b) If there is any change in labor laws after the contract has been awarded, then the new law shall automatically be binding on the contractor.
- c) Liaison with local commercial tax dept. to obtain Coml. Tax exemption certificate.
- d) **Liaison with IBR/Boiler Inspector to obtain all kinds of statutory permissions and drawing approval.**
- e) No additional financial compensation shall be paid by BHEL to the contractor for obtaining and fulfilling all statutory requirements.

3.3 PAYMENT TO WORKERS:

- a) Payment to workers shall be done in the presence of BHEL representative or through bank account only.
- b) The contractor shall intimate the day of payment at least three days in advance in writing along with copy of the pay sheet and attendance cards.
- c) All workmen shall be covered by PF Rules irrespective of their period of employment.
- d) Payment shall be made inside the plant premises and during office hours.

3.5 Statutory Inspection

- a) **In addition to it the scope includes getting the approvals from the statutory authorities (like IBR, smoke nuisance inspector, anti-pollution authorities, labor officials). This includes arranging for inspection visits of such authorities periodically as per requirement, submitting documents etc. and payment of fees connected with it. No additional financial compensation shall be paid by BHEL to the contractor for obtaining and fulfilling all statutory requirements.**

3.6 Safety:

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- IX : Special Conditions of Contract

Contractor should engage at least One Qualified Engineer in each shift during the contract period. Strict Safety measures have to be followed at Site. Contractor shall also adhere to all the safety provisions of our customer. In case violation of any provision at site fine of Rs.500/- to Rs.2000/- at the discretion of our site in-charge shall be imposed for each of such occasion and shall be recoverable from the contractor's bill.

1. The contractor should ensure the use of 24 volt hand lamps and 24 volt transformer by his workers. The all electrical gadgets shall have plug top & proper earthing.
2. All T&P like pulling and lifting machine, chain pulley blocks, slings, D-shackles should be maintained in proper working condition. Necessary test certificate has to be submitted by contractor for lifting tools & tackles.
3. The contractor shall be fully responsible for the safety of his workers.
4. The Use of ISI mark safety helmet, ISI mark safety shoes, Goggles, hand gloves, ear plugs and nose mask is a must. In addition to this, a full body (safety) harness, face shield must be provided to workers carrying out work at height & cutting/ welding/ grinding respectively. Gas cutting set with flash back arrester etc. should be provided by the contractor and should ensure the use of this safety equipment's, all PPE by his worker while working.
5. Scaffolding should be erected properly and strong enough with hand rails and it should not be used before getting it checked by Engineer-in-charge.
7. The contractor shall be solely responsible for the safety of his workers & employees. The contractor must ensure that the persons working in specialized nature jobs/ skilled jobs/ working with the welding machines, grinders, cutting set & other special T&P shall be having experience & expertise to perform that job. Contractor should engage physically and mentally fit manpower. The electrical connection / repair jobs shall be done only by the electricians.
8. The contractor shall ensure that prior to start of work all his workers shall get the safety training.
9. The contractor shall also take care for the safety of the equipments & persons working in the vicinity.
10. Customer at its own discretion may decide to recheck / retest some or all of the T&P / machines of the contractor inside the plant premises.
11. The helmets, safety shoes and safety belts issued by the contractor shall be conforming to relevant IS standards.
12. The contractor shall maintain the first aid box at site.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- X : List of Minimum Manpower to be Deployed by Contractor

4.0 LIST OF MINIMUM MANPOWER REQUIRED FOR EACH UNIT

| Sl.No | Manpower | Category | No. of Persons |
|-------|--------------------------|----------------------|--|
| 1. | Site-in charge | Graduate | 1 |
| 2. | Engineer | Graduate | 2 |
| 3. | Quality Engineer | Level-2 (preferable) | 1 |
| 4. | Foreman | Highly Skilled | 3 |
| 5. | Supervisor | Graduate | 3 |
| 6. | Store Keeper | Graduate | 2 |
| 7. | HP Welder | Highly Skilled | 4 |
| 8. | Non-IBR Welder | Skilled | 6 |
| 9. | Structural Welder | Skilled | 3 |
| 10. | Gas cutter | Skilled | 4 |
| 11. | Fitter (Pressure Part) | Highly Skilled | 4 (for BOFA erection & burner nozzle tips replacement) |
| 12. | Fitter (Duct) | Skilled | 3 |
| 13. | Fitter (Structure) | Skilled | 2 |
| 14. | Sarang | Skilled | 3 |
| 15. | Jr. Fitter | Skilled | 4 |
| 16. | Electrician | Skilled | 2 |
| 17. | Insn.Lagger / Carpenter | Semi-Skilled | 6 |
| 18. | Grinder Man | Skilled | 4 |
| 19. | Rigger | Semi-Skilled | 15 |
| 20. | Helper | Un-Skilled | 30 |
| 21. | Office Boy | Semi-Skilled | 2 |
| 22. | Special manpower | (Expert) | 2 |
| 23. | Safety Engr | Safety officer | 2 |

This is an indicative list; the sub-contractor shall deploy adequate manpower to carry out the work round the clock and as per requirement of the site during execution of the Job.

Note: Site in-charge should be qualified Engineer, B.E. (Mechanical) and all the supervisors should have diploma in engineering.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- X : List of Minimum Manpower to be Deployed by Contractor

Successful bidder has to arrange suitable mobile communication facility for BHEL site-in charge

4.1 Man power & T&P:

1. Adequate manpower along with T&P should be deployed at site. All the T&P required for the work shall be arranged by the contractor and all T&P should reach the site immediately as machine is under shutdown. All the measuring instruments shall be duly tested / calibrated and valid certificate to that effect should be submitted to our Site In-charge before start of the work.
2. A deployment plan along with experience and name of the Site In-charge, Engineers, Supervisors, Foreman and main technicians to be submitted on per shift basis.
3. LAP-TOP with latest configuration, DVD/CD writer, its peripherals including printer-scanner and one USB Modem for Internet connectivity to be provided for BHEL site office.
4. One office boy in each shift is to be provided for BHEL site office.
5. Expert with more than 25 years of experience to be engaged during entire overhauling period in consultation with BHEL.

4.2 CONSUMABLES TO BE ARRANGED BY CONTRACTOR FOR EACH UNIT

(The list is indicative only and not exhaustive)

01. Kerosene oil.
02. Rustolene.
03. Diesel/Petrol/white Petrol/Benzene/CRC/CTC.
04. DA and oxygen, general purpose welding electrode
05. Grease/Graphite Grease.
06. Hacksaw Blades.
07. Waste cloth/Cotton.
08. Marking/lint free cloth/Muslin.
09. Asbestos cloth/Asbestos cord.
10. Prussian blue.
11. Graphite (flaked) powder/Molykote/Mosil.
12. Cardiom compound.
13. Holdtite/shellac/Gasket sealing compound.
14. Lead wire 1.0 m/1.5 mm/0.5 mm.
15. Liquid soap.
16. Carborandum grinding paste coarse/fine/Diamond lapping paste.
17. Emery papers/Rolls.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter- X : List of Minimum Manpower to be Deployed by Contractor

18. Cutoff wheels.
19. Grinding wheels.
20. Oil stones, Mounted wheels, rotary cutters.
21. D. P. test chemicals.
22. Gas Cylinders for cutting/welding.
23. Chalk pieces, marking pens, thermo chalks upto 400c
24. Insulation tape, Johnson Tapes.
25. Sander discs and wheels.
26. Polyethylene sheets.
27. Araldite, M. Seal, Instabond, Dendrite.
28. CRC 2-26, white spirit.
29. Electric fuse wire, cables for the connections
30. 2.5 mm² Cu cable (flexible) of 200 mtr. length.
31. Ortho phosphoric acid
32. CRC Lectra-clean.

NOTE:

The above list is only indicative for work in one unit & not exhaustive. Arrangement for any other consumables required for completion of the job shall be the responsibility of the contractor & shall be arranged by him.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XI: Quality Requirement

QUALITY REQUIREMENT

- 1.0 Various inspection/ quality control / quality assurance procedure/ methods at various stages will be as per BHEL/ customer quality control procedure/ codes/ IBR and other statutory provisions and as per BHEL Engineer's instructions.
- 2.0 Preparation of quality assurance log sheets and protocols with customer's engineers, welding logs, other quality control and quality assurance documentation as per BHEL Engineer's instructions, is within the scope of work/ specification.
- 3.0 A daily log book should be maintained by Area In-charge of contractor on the job incorporating erection / alignment / welding clearance /radiography / progress of work etc. and the same shall be submitted to BHEL. Also, daily reports shall be submitted to BHEL.
- 4.0 All the important measurements like pre-assembly checking of alignment leveling/ centering work etc. 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.
- 5.0 The inspection/measuring and testing equipments should be of brand, quality and accuracy, as specified by BHEL engineer and should have valid calibration certificates traceable to national/international standards.
- 6.0 Total quality is the watchword of the work and contractor shall strive to achieve the quality standards, procedures laid down by BHEL. He will follow the instructions as per BHEL drawings and quality standards.
- 7.0 The welder's performance will be reviewed from time to time as per the BHEL/ IBR standards and any welder not performing to the standards set by BHEL/ IBR standards will be removed from working, Contractor shall arrange for the alternate welders immediately.
- 8.0 STAGE INSPECTION BY BHEL / CUSTOMERS ENGINEERS

Apart from day-to-day inspection/ stage inspection of equipments by BHEL engineers, the equipments may be checked at various stages by customer's engineers and quality assurance teams. Contractor shall arrange all labour, tools/tackles etc. for such inspections free of cost.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XII: Welding, Radiography and Non Destructive Testing

WELDING, RADIOGRAPHY AND OTHER NON-DESTRUCTIVE TESTING, POST WELD HEAT TREATMENT

14.1 WELDING

14.1.1

Installation of equipment involves good quality welding, NDE checks, post weld heat treatment etc. Contractor's personnel engaged should have adequate qualification on the above works.

14.1.2

The method of welding (viz) arc, TIG or other method will be indicated in the detailed drawing/documents. BHEL Engineer will have the option of changing the method of welding as per site requirement.

14.1.3

Welding of high pressure joints shall be done by IBR certified high pressure welders who have been permitted by CIB of state concerned for deployment at the site of work.

14.1.4

Welding of all attachments to pressure parts, piping shall be done only by the qualified and approved welders.

14.1.5

Before any welder is engaged on work, he shall be tested and qualified by BHEL/ customer, though they may possess the IBR/other certificate. BHEL reserves the right to reject any welder without assigning any reason. All the expenditure in testing/qualification of the Contractor's welder shall be borne by Contractor.

14.1.6

Unsatisfactory and continuous poor performance may result in discontinuation of concerned welder.

14.1.7

The welded surface shall be cleaned of slag and painted with primer paint to prevent rusting, corrosion. For this consumables like paint /primer etc. will be in the Contractor's scope.

14.1.8

HP joint fit-up, should be protected, where required, by use of tapes/protective paint as may be prescribed by BHEL. The Contractor shall arrange consumables like protective paints/tapes etc.

14.1.9

The Contractor shall maintain welding records in the form as prescribed by BHEL containing all necessary details, and submit the same to the BHEL Engineer as required. Interpretation of the BHEL Engineer regarding acceptability of the welds shall be final.

14.1.10

~~In the case of P-91 pipe welding, Contractor shall deploy welders having experience in welding of P-91 material. The welders engaged by Contractor if not qualified for P-91 welding will be trained by BHEL at~~

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XII: Welding, Radiography and Non Destructive Testing

~~BHEL welding research institute (WRI) trichy and allowed to work only after passing the required test arranged by BHEL. All the expenditure towards such qualification including cost of training, traveling expenses, stay etc, shall be borne by the Contractor.~~

14.1.11

Joint fit up will be a stage of inspection. Where required, joints shall be offered for visual inspection after root run. Subsequent welding should be made only after the approval of root run.

14.1.12 SOCKET WELDING:

In execution of this work, considerable number of socket weld joints is involved. The exact quantity of such socket welds or probable variation in the quantum cannot be furnished. The tenderer shall take notice of this while quoting as no extra claim on this account will be entertained. The socket welding on HP parts/ HP piping shall be done by the IBR qualified welders. Contractor has to adhere to the procedures/specification as indicated in the drawing for socket welding.

14.1.13

Welding electrodes have to be stored in enclosures having temperature and humidity control arrangements. This enclosure shall meet BHEL specifications.

14.1.14

Welding electrodes, prior to their use, call for baking for specified period and will have to be held at specified temperature for specified period. Also, during execution, the welding electrodes have to be carried in portable ovens.

14.2 HEAT TREATMENT:

14.2.1

For the purpose of temperature recording of stress relieving process, thermocouples have to be attached to the weld joint. The number of temperature measuring points and locations shall be as per the standards of BHEL. Thermocouples have to be attached using capacitor discharge type portable thermocouple attachment unit. Contractor shall arrange sufficient number of thermocouple attachment units.

14.2.2

Contractor should provide temperature indicator / temperature recorder for measuring temperature during pre-heating for welding or for controlling temperature of metal for hot correction etc. The temperature recorders should be preferably of solid state type.

14.2.3

Heat treatment may be required to be carried out at any time (day or night) to ensure the continuity of the process. The Contractor shall make all necessary arrangements including labourer required for the same as per directions of BHEL.

14.2.4

In certain cases only the pre-heating of weld joints may be called for.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XII: Welding, Radiography and Non Destructive Testing

14.2.5

For weld joints of heavy structural sections, if heat treatment is required, the same shall be carried out as part of the work.

14.2.6

Checking effectiveness of stress relieving by hardness tests (by digital hardness tester or other approved test methods as per BHEL Engineer's instruction) including necessary testing equipments is within the scope of the work / specification.

14.2.7

Preheating, inter-pass heating, post weld heating and stress relieving after welding are part of erection work and shall be performed by the Contractor in accordance with BHEL engineer's instructions. Where the electric resistance heating method is adopted Contractor shall make all arrangement including heating equipment with automatic recording devices, all heating elements, thermocouples and attachment units, graph sheets, thermal chalks, & insulating materials like mineral wool, asbestos cloth, ceramic beads, asbestos ropes etc, required for all heating and stress relieving works.

~~BHEL will provide the induction heating equipment set for SA 335 P-91 materials piping only. The set will comprise of following:~~

- (i) Main panel
- (ii) Capacitor panel
- (iii) Interconnection power & control cables between above panels
- (iv) 185 sq mm special connecting cable from capacitor panel output – 5m length.

~~Contractor shall provide the input electrical power connection including arrangements such as DB, cables etc. thermocouple pads, thermocouples and compensating cables, induction heating annealing cables (from the capacitor panel to joint and for wrapping around the weld joint) (spec: single core 240 sq mm, 1200a, 3khz), ceramic wool and other consumables etc. as may be required. Quantum of annealing cable requirement will depend on many parameters e.g. weld joint size, heat input, type of connection i.e. series or parallel etc.~~

~~Likely supplier: Mansfield Cable Co. Noida (UP).~~

14.2.8

All the recorded graphs for heat treatment shall be handed over to BHEL/ IBR authorities and due clearances obtained.

14.2.9

~~During welding & post weld heat treatment of main steam piping (P-91 material), the induction heating process shall continue un-interrupted. Therefore, contractor shall arrange back-up DG set to take care of power interruptions during the process.~~

14.2.10

Results of these processes shall be verified/ validated as per requirements of BHEL/client.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XII: Welding, Radiography and Non Destructive Testing

14.3 NON DESTRUCTIVE EXAMINATION:

14.3.1

Contractor shall provide all resources and make all arrangements for the radiographic examination of welds for this work. For reasons of safety, invariably the radiography work will be carried out after the normal working hours and close of other site activities only. In this regard, the Contractor has to adhere to the safety rules / regulations laid by bark authorities from time to time.

14.3.2

Radiography inspection of welds shall be performed in accordance with requirements and recommendation of BHEL Engineer. The minimum quantum of radiographic inspection shall be as per provision of IBR/BHEL's erection documents. They may, however be increased depending upon the performance of the individual welder at the discretion of BHEL Engineer/Boiler inspecting authority. Bidder shall also arrange the UT equipment with recording facility at his own cost. Usage of UT equipment shall be as per direction of BHEL engineer. Records of UT shall be produced as per site requirement.

14.3.3

All X-Ray / Gamma Ray films of weld joints shall be preserved properly and be handed over to BHEL/ IBR authorities and requisite clearances shall be obtained by the Contractor.

14.3.4

The field welded joints shall be subject to Dye-penetrant/MPT/RT/ other non-destructive examination as specified in the respective engineering documents/ as instructed by BHEL.

14.3.5

Wherever required, surface preparation, like smooth grinding of welded area, prior to Radiography shall be done. It may also become necessary to adopt inter-layer radiography/MPT/UT depending upon the site/ technical requirement necessitating interruptions in continuity of the work and making necessary arrangements for carrying out the above work. The Contractor shall take all this into account in his offer. The required NDT method/procedure will be decided by BHEL engineer at site.

14.3.6

Tenderer shall note that 100% radiography shall be taken on all high pressure welding till such time the welders' performance is found by BHEL Engineers to be satisfactory. Subsequently, subject to consistency in welder's performance, the percentage of radiography will be based on BHEL's standard practice/code requirement. the defects shall be rectified immediately and to the satisfaction of BHEL engineer. The decision of BHEL engineer regarding acceptance / rejecting the joints will be final and binding on the Contractor.

14.3.7

100% radiograph of certain sizes in piping have to be taken as per BHEL standards/ drawings.

14.3.8

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XII: Welding, Radiography and Non Destructive Testing

For carrying out ultrasonic testing of welding joints of large size tubes and pipes, it will be necessary to prepare surface by grinding and buffing a smooth finish and contour as necessary. The Contractor's scope of work includes such preparation as incidental to work.

14.3.9

After stress relieving 5% of UT for all critical lines and 2% of UT for other alloy steel lines to be taken to ensure soundness of joints particularly stress relieving cracks. No separate payment will be made.

14.3.10

Contractor may have to undertake radiography with cobalt-60 isotope camera in certain cases. However, for any reason if use of Cobalt-60 is not possible then these joints shall be checked by radiography after completion of welding up to suitable part of thickness with IR-192 other suitable source subsequently after completing the joint UT to be done. For this Contractor has to deploy level-II operator certified by BARC.

14.3.12

For piping of thickness less than 25 mm no radiography plugs will be provided radiography shots to be taken by double wall technique or any other method to be adopted in consultation with BHEL engineer at site.

14.3.13

No separate payment for any NDE activities (including radiography) will be made.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XIII: LINING AND INSULATION

LINING AND INSULATION

15.1 The work shall conform to dimension and tolerances specified in the various drawing and documents that will be provided during the execution. if any portion of the work is found to be defective in workmanship or not conforming to drawings or other specifications, the Contractor shall dismantle and re-do the work duly replacing the defective materials at his cost, failing which the work will be got done by engaging other agencies or departmentally and recoveries will be deducted from Contractor's bills towards expenditure incurred including 30% departmental charges.

15.2 The terminal points as decided by BHEL shall be final and binding on the Contractor.

15.3 All insulation and refractory materials including iron components and outer sheet casing materials, cladding sheets etc. required will be supplied by BHEL and the same have to be erected/ applied as per the drawings and specifications of BHEL by the Contractor.

15.4 The Contractor shall provide all the necessary scaffolding materials, temporary structures and necessary safety devices etc., during all stages of work. Scaffolding materials (poles, gratings etc.) shall be of light weight construction. Contractor shall arrange steel pipes & clamps with accessories like base plate attachment, fixing pins, struts etc. for scaffolding required for this work. However, BHEL's decision in this regard shall be final and binding. Contractor shall arrange the scaffolding materials in sufficient quantity.

The Contractor shall provide the required quantity of wire, nails, and planks for formwork and other materials for shuttering and curing works.

15.5 Contractor shall observe all precaution for laying, curing etc. of pourable insulation. the Contractor at his own cost shall redo any defective works found.

15.6 Wool insulation is received at site as loose bonded mattresses in standard sizes. These are to be dressed/cut to suite the equipment's. Multiple layers of wool have to be applied as directed and as per drawings and specifications for all equipment's/ systems covered under the scope of work.

15.6 Cutting & dressing of insulation bricks to suit the site area of application is incidental to work.

15.7 Removable type of insulation has to be provided for valves fittings, expansion joints etc. as per drawing or as directed by BHEL Engineer.

15.8 The cladding and outer casing are aluminum sheets. All relevant specifications and procedures with regards to beading, sealing etc. for aluminum sheets have to be adhered to.

15.9 Cladding/outer casing shall be fixed expeditiously, so as to avoid damage to the insulation from the weather.

15.10 The overlapping surface of outer casing/cladding sheet shall be coated with sealing compound, which will be supplied by BHEL free of cost.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XIII: LINING AND INSULATION

15.11 To take care of bimetal corrosion due to variety of metals in contact of each other viz. retainer to support, support to outer casing/cladding, cladding-to-cladding etc., suitable paints specified by BHEL, to be applied and/or neoprene rubber packing/strips or any other insert may have to be fixed as required.

15.12 The Contractor shall leave certain gaps and openings while doing the work as per the instructions of BHEL Engineer to facilitate inspection by boiler inspector or during commissioning to fix gauges, fittings, instruments etc. these gaps will have to be finished as per drawings at later date by the Contractor at his cost.

Contractor shall cut open works in needed as per BHEL Engineer's instructions during commissioning for inspection, checking and make good the works after inspection is over without any extra payment.

15.13 A log book shall be maintained by the Contractor for the clearance of the area for application of refractory and insulation. Where the Contractor does the work on his own accord without prior permission, the work should be re-done, at his own cost, where necessitated.

15.14 Wastage allowances for the material issued are envisaged as follows:

| | | | |
|-----|---------------------------------|---|----|
| ➤ a | Pourable & cast able insulation | - | 2% |
| ➤ b | Insulation bricks and motor | - | 2% |
| ➤ c | Wool mattresses | - | 2% |
| ➤ d | Cladding sheets | - | 2% |

The wastage allowance will be applicable on the net issued quantity i.e. total quantity issued reduced by the quantity returned to stores as unused/fresh item. Contractor shall reconcile the material issues periodically as prescribed by BHEL site.

15.15 The following works are also included in the scope of this contract.

Cutting of cladding sheets as per the profile of the equipment and painting on inner surface two coats of bituminous paint. **Black Bituminous Paint will be supplied by Contractor.**

Cutting of the wool mattresses to the required shape and application of finishing cement of required thickness wherever required.

15.16 Insulation work of temporary piping for alkali boil out, steam blowing and chemical cleaning has to be carried out at site. The same have to be removed and returned to the BHEL stores after the completion of activity. Rates quoted for application of wool for boiler and auxiliaries will be applicable for this work also. No separate payment will be made for removal of temporary insulation and return of the same to BHEL stores/yard.

15.17 In certain instances, co-ordinated/phased application of cast able refractory/ insulation on pressure parts etc. may be necessitated in consideration of sequence of activities of other erection agencies. Contractor shall do such phased work as may be directed by BHEL.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XIII: LINING AND INSULATION

15.18 Prior to application of refractory bituminous painting on the pressure parts and other area is under Contractor scope. The bituminous paint will be supplied by Contractor. No separate payment will be made for application of paint.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| PGMA Details | | | |
|---------------------|-------------|------------------------------------|---------------|
| Sl. No | PGMA | DU Descriptions | DU Wt. |
| 1 | 06500 | BOFA PANEL (OFA-1 & OFA-3) | 2,968.504 |
| 2 | 06500 | BOFA PANEL (OFA-2 & OFA-4) | 2,954.156 |
| 3 | 08006 | WIND BOX TRUSS (1 L.H.S = 1 R.H.S) | 3,408.048 |
| 4 | 08006 | TUBE D 76.1 X 7.1 | 31.000 |
| 5 | 08006 | PLATE 16 | 1,024.000 |
| 6 | 08006 | PLATE 12 | 32.800 |
| 7 | 08006 | PLATE 20 | 36.000 |
| 8 | 08006 | PLATE 12 | 169.600 |
| 9 | 08006 | ROD - D50 | 31.200 |
| 10 | 08006 | PLATE 10 | 38.400 |
| 11 | 08006 | PLATE 25 | 28.400 |
| 12 | 08006 | PLATE 12 | 120.000 |
| 13 | 08006 | ROD - D63 | 20.000 |
| 14 | 08006 | PLATE 12 | 24.000 |
| 15 | 08006 | PLATE 25 | 6.800 |
| 16 | 08006 | PLATE 25 | 29.000 |
| 17 | 08006 | PLATE 10 | 80.000 |
| 18 | 08006 | PLATE 6 | 4.000 |
| 19 | 08006 | PLATE 10 | 9.600 |
| 20 | 08006 | "T"-PLATE | 54.400 |
| 21 | 08006 | PLATE 12 | 56.800 |
| 22 | 08006 | PLATE 16 | 110.000 |
| 23 | 08006 | PLATE 16 | 86.000 |
| 24 | 08006 | PLATE 20 | 42.800 |
| 25 | 08006 | BOLT HEX GR C 4.6 M20X70 | 3.728 |
| 26 | 08006 | NUT HEX GR C M20 | 1.040 |
| 27 | 08006 | WASHER PNCHD A20 | 0.272 |
| 28 | 08006 | PLATE 36 | 13.600 |
| 29 | 08006 | ISM C 250 | 3,581.200 |
| 30 | 08006 | ISM C 250 | 2,968.000 |
| 31 | 08006 | PLATE 12 | 435.400 |
| 32 | 08006 | RETAINER | 42.000 |
| 33 | 08006 | FIELD SPLICE PLATE; PLATE 25 | 49.600 |
| 34 | 08006 | NUT HEX GR B6 M36 X 3 | 3.168 |
| 35 | 08006 | TUBE D 76.1 X 7.1 | 80.400 |
| 36 | 08006 | PLATE 12 | 14.600 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|------------------------------------|-------|--------------------------------|-------------------|
| 37 | 08006 | PLATE 12 | 2.800 |
| 38 | 08006 | PLATE 10 | 60.000 |
| 39 | 08006 | PLATE 16 | 79.800 |
| 40 | 08006 | PLATE 16 | 71.200 |
| 41 | 08006 | PLATE 16 | 6.700 |
| 42 | 08006 | PLATE 10 | 3.800 |
| 43 | 08006 | PLATE 10 | 2.900 |
| 44 | 08006 | PLATE 10 | 71.400 |
| 45 | 08006 | PLATE 16 | 116.400 |
| 46 | 08006 | PLATE 10 | 3.800 |
| 47 | 08006 | PLATE 10 | 3.400 |
| 48 | 08006 | PLATE 10 | 6.400 |
| 49 | 08006 | BUCKSTAY MODULAR ASSY. FFR47A | 1,951.047 |
| 50 | 08006 | BUCKSTAY MODULAR ASSY. FFR47B | 1,466.018 |
| 51 | 08006 | PLATE 20 (FSPL200) | 7.600 |
| 52 | 08006 | BUCKSTAY MODULAR ASSY. FRE-47A | 1,951.047 |
| 53 | 08006 | BUCKSTAY MODULAR ASSY. FRE-47B | 1,466.018 |
| Sub Total (Pressure Parts) | | | 25,828.846 |
| 1 | 48207 | FLOW METER | 2,931.924 |
| 2 | 48262 | STRAIGHT DUCT WALL | 546.856 |
| 3 | 48262 | STRAIGHT DUCT WALL | 481.952 |
| 4 | 48262 | STRAIGHT DUCT WALL | 1,696.504 |
| 5 | 48262 | STRAIGHT DUCT WALL | 1,504.632 |
| 6 | 48262 | ELBOW DUCT WALL | 230.444 |
| 7 | 48262 | ELBOW DUCT WALL | 124.873 |
| 8 | 48262 | ELBOW DUCT WALL | 196.419 |
| 9 | 48262 | ELBOW DUCT WALL | 99.512 |
| 10 | 48262 | ELBOW DUCT WALL | 228.002 |
| 11 | 48262 | ELBOW DUCT WALL | 223.475 |
| 12 | 48262 | ELBOW DUCT WALL | 55.834 |
| 13 | 48262 | ELBOW DUCT WALL | 280.761 |
| 14 | 48262 | ELBOW DUCT WALL | 87.253 |
| 15 | 48262 | ELBOW DUCT WALL | 171.944 |
| 16 | 48262 | ELBOW DUCT WALL | 31.076 |
| 17 | 48262 | FLANGE | 101.202 |
| 18 | 48262 | FLANGE | 89.022 |
| 19 | 48262 | ELBOW DUCT WALL | 260.179 |
| 20 | 48262 | ELBOW DUCT WALL | 144.718 |
| 21 | 48262 | ELBOW DUCT WALL | 143.282 |
| 22 | 48262 | ELBOW DUCT WALL | 211.073 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|----|-------|--------------------|-----------|
| 23 | 48262 | ELBOW DUCT WALL | 209.944 |
| 24 | 48262 | ELBOW DUCT WALL | 359.333 |
| 25 | 48262 | ELBOW DUCT WALL | 141.168 |
| 26 | 48262 | FLANGE | 44.533 |
| 27 | 48262 | FLANGE | 50.623 |
| 28 | 48262 | FLANGE | 92.344 |
| 29 | 48262 | ELBOW DUCT WALL | 230.442 |
| 30 | 48262 | ELBOW DUCT WALL | 135.769 |
| 31 | 48262 | ELBOW DUCT WALL | 196.419 |
| 32 | 48262 | ELBOW DUCT WALL | 106.806 |
| 33 | 48262 | ELBOW DUCT WALL | 207.513 |
| 34 | 48262 | ELBOW DUCT WALL | 210.070 |
| 35 | 48262 | ELBOW DUCT WALL | 280.761 |
| 36 | 48262 | ELBOW DUCT WALL | 171.944 |
| 37 | 48262 | ELBOW DUCT WALL | 55.834 |
| 38 | 48262 | ELBOW DUCT WALL | 87.253 |
| 39 | 48262 | ELBOW DUCT WALL | 31.100 |
| 40 | 48262 | FLANGE | 101.202 |
| 41 | 48262 | FLANGE | 89.022 |
| 42 | 48262 | ELBOW DUCT WALL | 228.292 |
| 43 | 48262 | ELBOW DUCT WALL | 136.449 |
| 44 | 48262 | ELBOW DUCT WALL | 157.861 |
| 45 | 48262 | ELBOW DUCT WALL | 68.290 |
| 46 | 48262 | ELBOW DUCT WALL | 222.330 |
| 47 | 48262 | ELBOW DUCT WALL | 257.932 |
| 48 | 48262 | ELBOW DUCT WALL | 280.501 |
| 49 | 48262 | ELBOW DUCT WALL | 87.253 |
| 50 | 48262 | ELBOW DUCT WALL | 131.328 |
| 51 | 48262 | ELBOW DUCT WALL | 10.471 |
| 52 | 48262 | FLANGE | 101.202 |
| 53 | 48262 | FLANGE | 89.022 |
| 54 | 48262 | STRAIGHT DUCT WALL | 1,078.844 |
| 55 | 48262 | STRAIGHT DUCT WALL | 999.740 |
| 56 | 48262 | STRAIGHT DUCT WALL | 1,363.496 |
| 57 | 48262 | STRAIGHT DUCT WALL | 1,368.688 |
| 58 | 48262 | STRAIGHT DUCT WALL | 1,134.792 |
| 59 | 48262 | STRAIGHT DUCT WALL | 1,167.096 |
| 60 | 48262 | STRAIGHT DUCT WALL | 158.192 |
| 61 | 48262 | STRAIGHT DUCT WALL | 112.048 |
| 62 | 48262 | STRAIGHT DUCT WALL | 847.624 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|-----|-------|----------------------|---------|
| 63 | 48262 | STRAIGHT DUCT WALL | 762.456 |
| 64 | 48262 | DUCT WALL | 326.888 |
| 65 | 48262 | DUCT WALL | 313.653 |
| 66 | 48262 | DUCT WALL | 310.698 |
| 67 | 48262 | DUCT WALL | 231.008 |
| 68 | 48262 | DUCT WALL | 295.445 |
| 69 | 48262 | DUCT WALL | 415.332 |
| 70 | 48262 | DUCT WALL | 364.286 |
| 71 | 48262 | DUCT WALL | 237.179 |
| 72 | 48262 | DUCT WALL | 96.698 |
| 73 | 48262 | DUCT WALL | 107.238 |
| 74 | 48262 | DUCT WALL | 416.802 |
| 75 | 48262 | DUCT WALL | 722.970 |
| 76 | 48262 | DUCT WALL | 582.843 |
| 77 | 48262 | EXPN JOINT | 471.040 |
| 78 | 48262 | EXPN JOINT | 11.888 |
| 79 | 48262 | SH.2X224X2600 | 9.143 |
| 80 | 48262 | SH.2X224X6357 | 22.356 |
| 81 | 48262 | SH.2X224X5500 | 19.342 |
| 82 | 48262 | SH.2X224X2600 | 9.143 |
| 83 | 48262 | SH.2X224X2912 | 10.240 |
| 84 | 48262 | SH.2X224X3650. C.T.S | 12.836 |
| 85 | 48262 | SH.2X224X5884 | 20.690 |
| 86 | 48262 | DUCT WALL | 326.888 |
| 87 | 48262 | DUCT WALL | 313.653 |
| 88 | 48262 | DUCT WALL | 310.698 |
| 89 | 48262 | DUCT WALL | 231.008 |
| 90 | 48262 | DUCT WALL | 295.445 |
| 91 | 48262 | DUCT WALL | 415.332 |
| 92 | 48262 | DUCT WALL | 364.286 |
| 93 | 48262 | DUCT WALL | 237.179 |
| 94 | 48262 | DUCT WALL | 96.698 |
| 95 | 48262 | DUCT WALL | 107.238 |
| 96 | 48262 | DUCT WALL | 416.802 |
| 97 | 48262 | DUCT WALL | 722.970 |
| 98 | 48262 | DUCT WALL | 582.843 |
| 99 | 48262 | SH.2X224X2600 | 9.143 |
| 100 | 48262 | SH.2X224X6357 | 22.356 |
| 101 | 48262 | SH.2X224X5500 | 19.342 |
| 102 | 48262 | SH.2X224X2600 | 9.143 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|-----|-------|---|-----------|
| 103 | 48262 | SH.2X224X2912 | 10.240 |
| 104 | 48262 | SH.2X224X3650. C.T.S | 12.836 |
| 105 | 48262 | SH.2X224X5884 | 20.690 |
| 106 | 48264 | EXPJT FULL SIZE 2040X2040XSTYLE 4 | 6,891.200 |
| 107 | 48264 | EXPJT FULL SIZE 2040X2040XSTYLE 2 | 4,444.512 |
| 108 | 48264 | EXPJOINT FULL SIZE 2634X1260 STYLE2 | 2,148.560 |
| 109 | 48265 | BEAM | 585.032 |
| 110 | 48265 | PLT 16;300x300 | 135.648 |
| 111 | 48265 | CHANNEL BOX | 712.176 |
| 112 | 48265 | CHANNEL BOX | 1,381.072 |
| 113 | 48265 | CHANNEL | 343.250 |
| 114 | 48265 | CHANNEL | 16.609 |
| 115 | 48265 | RESTRAINT | 560.952 |
| 116 | 48265 | CHANNEL | 25.190 |
| 117 | 48265 | PLT 16;300x300 | 226.080 |
| 118 | 48915 | MAN HOLE DOOR 450X450 - CS | 577.160 |
| 119 | 48915 | GRAB BAR-1 | 34.000 |
| 120 | 48915 | GRAB BAR-2 | 86.000 |
| 121 | 45200 | SADC POWER CYLINDER 4" X 4" (UPWARD MTG) | 120.000 |
| 122 | 45200 | SADC POWER CYLINDER 4" X 4"(DOWNWARD MTG) | 120.000 |
| 123 | 45200 | BURNER TILT POWER CYLINDER | 800.000 |
| 124 | 45220 | FLAT 50 X 6; L=130 | 7.200 |
| 125 | 45220 | FLAT 50X6; L=17 | 0.320 |
| 126 | 45220 | PIPE CLAMP FL 50X6; L=97 | 4.560 |
| 127 | 45220 | TUBE D14X2; L=1000 | 9.600 |
| 128 | 45220 | TUBE NB 40 D48.3 X 3.68 | 40.500 |
| 129 | 45320 | ANGLE FOR EA ISA75X75X1215L | 132.192 |
| 130 | 45320 | SHIELDING PLATE FOR EA PL5X186X1215 | 141.920 |
| 131 | 45320 | ANGLE FOR OIL/AIR/COAL ISA 50X50X1215L | 765.520 |
| 132 | 45320 | SHIELDING PLATE FOR EA PL5X521X1215L | 795.040 |
| 133 | 45320 | SHIELDING PLATE FOR EA PL5X519X1215 | 891.612 |
| 134 | 45320 | SHIELDING PLATE FOR EA PL5X417X1215 | 716.400 |
| 135 | 45320 | STOPPEE PLATE PL6X50X1215L | 103.428 |
| 136 | 45320 | LOCKING PLATE PL6X60X100L | 30.564 |
| 137 | 45321 | INNER PANEL BOTTOM EA COR-1&3 | 30.108 |
| 138 | 45321 | INNER PANEL BOTTOMEA 2&4 | 30.108 |
| 139 | 45321 | INNER PANEL-COAL PL6X980X1000 | 1,008.000 |
| 140 | 45321 | INNER PANEL-OIL COR 1&3 | 332.330 |
| 141 | 45321 | INNER PANEL-OIL COR - 2&4 | 332.330 |
| 142 | 45321 | INNER I.A PANELS WITH YAW CORNERS 1 & 3. | 368.238 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|-----|-------|--|---------|
| 143 | 45321 | INNER I.A PANELS WITH YAW CORNERS 2 & 4 | 368.238 |
| 144 | 45321 | INNER OFA PANELS WITH YAW (CORNER 1 & 3) | 235.704 |
| 145 | 45321 | INNER OFA PANELS WITH YAW (CORNER 2 & 4) | 235.704 |
| 146 | 45321 | INNER PANEL TOP EA COR 1&3 | 29.794 |
| 147 | 45321 | INNER PANEL TOP EA2&4 | 29.794 |
| 148 | 45321 | FRONT OUTER PANEL (TOP EA+COAL)(COR2&4) | 53.716 |
| 149 | 45321 | FRONT OUTER PANEL (COAL)(COR 1&3) | 249.900 |
| 150 | 45321 | FRONT OUTER PANEL (OIL)(COR1&3) | 81.215 |
| 151 | 45321 | FRONT OUTER PANEL (OIL)(COR 1&3) | 81.215 |
| 152 | 45321 | FRONT OUTER PANEL (INT.AIR)(COR 1&30) | 97.560 |
| 153 | 45321 | FRONT OUTER PANEL (BOT.EA+COAL)(COR1&3) | 54.132 |
| 154 | 45321 | FRONT OUTER PANEL (OFA)(2&4) | 54.654 |
| 155 | 45321 | SCRU HEX M8X16 | 8.800 |
| 156 | 45321 | NUT D CAP .M8 | 8.800 |
| 157 | 45321 | WASHER PUNCH D.A 8 | 1.600 |
| 158 | 45321 | SCRU HEX M8X20 | 0.816 |
| 159 | 45321 | FRONT OUTER PANEL (TOP EA+COAL)(COR1&3) | 53.716 |
| 160 | 45321 | FRONT OUTER PANEL (COAL)(COR 1&3) | 249.900 |
| 161 | 45321 | FRONT OUTER PANEL (OIL)(1&3) | 81.215 |
| 162 | 45321 | FRONT OUTER PANEL (OIL)(COR 1&3) | 81.215 |
| 163 | 45321 | FRONT OUTER PANEL (INT.AIR)(COR 1&3) | 97.560 |
| 164 | 45321 | FRONT OUTER PANEL (BOT.EA+COAL)(COR 1&3) | 54.132 |
| 165 | 45321 | FRONT OUTER PANEL (OFA)(COR 1&3) | 54.654 |
| 166 | 45321 | SCRU HEX M8X16 | 8.800 |
| 167 | 45321 | NUT D CAP .M8 | 8.800 |
| 168 | 45321 | WASHER PUNCH D.A 8 | 1.600 |
| 169 | 45321 | SCRU HEX M8X20 | 0.816 |
| 170 | 45321 | HEX HD SCRU-M12X30 -4.6-IS1363P2 | 131.200 |
| 171 | 45321 | NUT -M12 -CL4-IS1363P3 | 64.000 |
| 172 | 45321 | PUN WASHER-M12 -IS2016-A | 32.000 |
| 173 | 45321 | NONASBESTOS COMPRESSED FIBREJOINTING-2MM | 141.120 |
| 174 | 45321 | HIGH TEMP (750F & ABOVE) SPRAY LUBRICANT | 4.000 |
| 175 | 45321 | ANTI SIEZE THREAD LUBRICANT | 4.000 |
| 176 | 45321 | PLATE WELDMENT-I FORCORS 1&3 | 317.762 |
| 177 | 45321 | PLATE WELDMENT-II FOR CORS 2&4 | 249.996 |
| 178 | 45321 | SLOTTED PL(TRUSS) PL25X200X310 | 47.200 |
| 179 | 45321 | SLOTTED PL(BS SIDE) PL 20X150X370 | 28.800 |
| 180 | 45321 | PL 20X200X235 | 28.000 |
| 181 | 45321 | SHIM PL 10X150X150 | 14.000 |
| 182 | 45321 | SHEAR PIN D 25;69 | 1.096 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|-----|-------|--|-----------|
| 183 | 45321 | SUPPORT PLATE PL 6X75X200 | 15.040 |
| 184 | 45321 | TUBE D42.4X3.20 L=230 | 11.360 |
| 185 | 45321 | ANCHOR PIVOT PIN D 33 ; 244 | 17.600 |
| 186 | 45321 | SPLIT PIN 4X56MM | 0.128 |
| 187 | 45321 | FRAME | 315.400 |
| 188 | 45321 | PLATE PL.6X199X2614 | 195.936 |
| 189 | 45321 | PLATE PL.6X150X1223 | 68.952 |
| 190 | 45321 | SH.2.5X272X1187 | 50.712 |
| 191 | 45321 | SUPPORT CLIP | 54.720 |
| 192 | 45321 | CERAMIC CLOTH SH.3X 80;10MR | 7.680 |
| 193 | 45321 | HEX HD BOLT M24X65 CL:10.9 | 62.560 |
| 194 | 45321 | HEX NUT M24-10 | 20.240 |
| 195 | 45321 | MACHINED WASHER 25 | 1.280 |
| 196 | 45321 | BURNER FRAME WASHER | 10.080 |
| 197 | 45321 | PEDESTAL | 56.400 |
| 198 | 45321 | BOLT-M16X60 | 1.968 |
| 199 | 45321 | HEX NUT M16 | 0.480 |
| 200 | 45321 | PLAIN WASHER A16 | 0.608 |
| 201 | 45325 | ANGLE 150 X 150 X 12-IS2062E250A(FE410W) | 707.616 |
| 202 | 45325 | ANGLE 40 X 40 X 5-IS2062E250A(FE410W) | 87.480 |
| 203 | 45325 | OVERFIRE AIR NOZZLE TIP - CORNERS 1&3 | 579.184 |
| 204 | 45325 | END AIR NOZZLE TIP CORNERS 1&3 | 276.560 |
| 205 | 45325 | COAL NOZZLE TIP ASSLY - CORNERS 1&3 | 3,782.700 |
| 206 | 45325 | OIL NOZZLE TIP CORNERS 1&3 | 915.500 |
| 207 | 45325 | INTER AIR NOZZLE TIP CORNERS 1&3 | 731.568 |
| 208 | 45325 | SEAL PLATE FOR COAL TIP - CORNERS 1&3 | 317.880 |
| 209 | 45325 | TUBULAR REACH ROD CORNERS 1&3 | 327.516 |
| 210 | 45325 | REACH ROD PIN | 2.520 |
| 211 | 45325 | CONNECTING LINK ASSLY "L"=1985 | 52.870 |
| 212 | 45325 | REACH ROD PIVOT PIN,D50,L107 | 25.200 |
| 213 | 45325 | L-LEVER ROUND PIN,D19,L=44 | 7.140 |
| 214 | 45325 | HIGH TEMP (750F & ABOVE) SPRAY LUBRICANT | 1.000 |
| 215 | 45325 | ANTI SIEZE THREAD LUBRICANT | 1.000 |
| 216 | 45325 | CN PIVOT PIN(D22.5);D31,L-63 | 7.920 |
| 217 | 45325 | SPARE SHEAR PIN;D25 L-69 | 2.192 |
| 218 | 45325 | ANGLE 150 X 150 X 12-IS2062E250A(FE410W) | 707.616 |
| 219 | 45325 | ANGLE 40 X 40 X 5-IS2062E250A(FE410W) | 87.480 |
| 220 | 45325 | OVERFIRE AIR NOZZLE TIP - CORNERS 2&4 | 579.184 |
| 221 | 45325 | END AIR NOZZLE TIP CORNERS 2&4 | 276.560 |
| 222 | 45325 | COAL NOZZLE TIP ASSLY - CORNERS 2&4 | 3,782.700 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|--|-------|---|---------------------|
| 223 | 45325 | OIL NOZZLE TIP CORNERS 2&4 | 915.500 |
| 224 | 45325 | INTER AIR NOZZLE TIP CORNERS 2&4 | 731.568 |
| 225 | 45325 | SEAL PLATE FOR COAL TIP - CORNERS 2&4 | 317.880 |
| 226 | 45325 | TUBULAR REACH ROD CORNERS 2&4 | 327.516 |
| 227 | 45325 | REACH ROD PIN | 2.520 |
| 228 | 45325 | CONNECTING LINK ASSLY "L"=1985 | 52.870 |
| 229 | 45325 | REACH ROD PIVOT PIN,D50,L107 | 25.200 |
| 230 | 45325 | L-LEVER ROUND PIN,D19,L=44 | 7.140 |
| 231 | 45325 | HIGH TEMP (750F & ABOVE) SPRAY LUBRICANT | 1.000 |
| 232 | 45325 | ANTI SIEZE THREAD LUBRICANT | 1.000 |
| 233 | 45325 | CN PIVOT PIN(D22.5);D31,L-63 | 7.920 |
| 234 | 45325 | SPARE SHEAR PIN;D25 L-69 | 2.192 |
| 235 | 45804 | BOFA ASSEMBLY CORNER1 AND 3 | 9,955.056 |
| 236 | 45804 | BOFA ASSEMBLY CORNER 2 AND 4 | 10,517.726 |
| 237 | 45804 | SADC POWER CYLINDER 4" X 4" (UPWARD MTG) | 45.000 |
| 238 | 45804 | SADC POWER CYLINDER 4" X 4"(DOWNWARD MTG) | 45.000 |
| 239 | 45997 | COAL NOZZLE TIP FOR COR-1&3 | 11,772.432 |
| 240 | 45997 | OIL NOZZLE TIP FOR COR-1&3 | 1,988.160 |
| 241 | 45997 | COAL NOZZLE TIP FOR COR-2&4 | 11,772.432 |
| 242 | 45997 | OIL NOZZLE TIP FOR COR-2&4 | 1,988.160 |
| Sub Total (DUCT and Non Pressure Parts) | | | 1,25,860.869 |
| 1 | 36321 | MB321-101 ISMB400 | 418.517 |
| 2 | 36321 | MB321-102 WB700X300-20/16 | 2,422.452 |
| 3 | 36321 | MB321-103 ISMB250 | 849.920 |
| 4 | 36321 | MB321-104 ISMB125 | 239.448 |
| 5 | 36321 | MB321-105 ISMB400 | 544.063 |
| 6 | 36321 | MB321-106 ISMB400 | 545.723 |
| 7 | 36321 | MB321-107 ISMB400 | 545.021 |
| 8 | 36321 | MB321-108 WBOX-400X400-25/25 | 10,133.208 |
| 9 | 36321 | MB321-109 ISMB400 | 546.681 |
| 10 | 36321 | MB321-110 WB700X300-20/16 | 2,404.742 |
| 11 | 36321 | MB321-111 WBOX200X200-16/16 | 239.358 |
| 12 | 36321 | MB321-112 WBOX200X200-16/16 | 227.179 |
| 13 | 36321 | MB321-114 ISMB150 | 33.373 |
| 14 | 36321 | MB321-115 ISMB150 | 7.171 |
| 15 | 36321 | MB321-116 ISMB150 | 44.772 |
| 16 | 36321 | BEAM 125 X 70 -IS2062E250A(FE410W) | 804.000 |
| 17 | 36321 | BEAM 400 X 140 -IS2062E250A(FE410W) | 615.000 |
| 18 | 36322 | HBR322-102 DBA80X80X8 | 44.293 |
| 19 | 36322 | HBR322-104 DBA80X80X8 | 45.603 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|----|-------|-----------------------------|---------|
| 20 | 36322 | HBR322-106 DBA80X80X8 | 57.595 |
| 21 | 36322 | HBR322-107 DBA100X100X10 | 90.871 |
| 22 | 36322 | HBR322-110 DBA100X100X10 | 94.928 |
| 23 | 36322 | HBR322-111 DBA80X80X8 | 60.480 |
| 24 | 36322 | HBR322-114 DBA80X80X8 | 60.730 |
| 25 | 36322 | HBR322-115 DBA100X100X10 | 94.885 |
| 26 | 36322 | HBR322-118 DBA100X100X10 | 90.779 |
| 27 | 36322 | HBR322-119 DBA80X80X8 | 57.713 |
| 28 | 36322 | MB322-101 ISMB125 | 39.708 |
| 29 | 36322 | MB322-103 ISMB125 | 38.775 |
| 30 | 36322 | MB322-108 ISMB125 | 18.620 |
| 31 | 36322 | MB322-109 ISMB125 | 18.635 |
| 32 | 36322 | MB322-113 ISMB125 | 63.430 |
| 33 | 36322 | MB322-124 ISMB200 | 35.656 |
| 34 | 36322 | MB322-125 ISMB125 | 18.809 |
| 35 | 36322 | MB322-130 ISMB200 | 35.654 |
| 36 | 36322 | MB322-131 ISMB200 | 51.302 |
| 37 | 36322 | MB322-132 ISMB250 | 158.576 |
| 38 | 36322 | MB322-133 ISMB250 | 158.576 |
| 39 | 36322 | MB322-134 ISMB200 | 83.602 |
| 40 | 36322 | MB322-135 ISMB125 | 27.062 |
| 41 | 36322 | MB322-137 ISMB125 | 15.806 |
| 42 | 36322 | MB322-139 ISMB125 | 7.895 |
| 43 | 36322 | MB322-141 WB300X150-12/12 | 372.934 |
| 44 | 36322 | MB322-144 ISMB125 | 7.290 |
| 45 | 36322 | MB322-145 BC100 | 40.598 |
| 46 | 36322 | MB322-147 WBOX200X200-16/16 | 308.311 |
| 47 | 36322 | MB322-149 WB300X150-12/12 | 182.418 |
| 48 | 36322 | MB322-151 ISMB125 | 27.028 |
| 49 | 36322 | MB322-153 ISMB300 | 203.838 |
| 50 | 36322 | MB322-154 WB300X150-12/12 | 236.913 |
| 51 | 36322 | MB322-155 ISMB200 | 35.646 |
| 52 | 36322 | MB322-156 ISMB200 | 51.237 |
| 53 | 36322 | MB322-160 ISMB125 | 48.726 |
| 54 | 36322 | MB322-161 ISMB150 | 37.422 |
| 55 | 36322 | MB322-162 ISMB150 | 32.901 |
| 56 | 36322 | MB322-163 ISMB150 | 98.247 |
| 57 | 36322 | MB322-165 ISMB125 | 69.668 |
| 58 | 36322 | MB322-167 ISMB125 | 34.858 |
| 59 | 36322 | MB322-176 ISMB125 | 16.443 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|----|-------|-----------------------------|---------|
| 60 | 36322 | MB322-177 ISMC100 | 14.272 |
| 61 | 36322 | MB322-182 ISMB150 | 44.496 |
| 62 | 36322 | MB322-183 ISMB150 | 22.400 |
| 63 | 36322 | MB322-184 ISMB150 | 18.101 |
| 64 | 36322 | MB322-185 ISMB200 | 73.392 |
| 65 | 36322 | MB322-192 ISMB150 | 49.304 |
| 66 | 36322 | MB322-193 ISMC300 | 59.649 |
| 67 | 36322 | MB322-194 ISMB200 | 41.744 |
| 68 | 36322 | MB322-199 ISMB450 | 608.997 |
| 69 | 36322 | MB322-204 ISMB150 | 28.232 |
| 70 | 36322 | HBR322-101 DBA80X80X8 | 44.293 |
| 71 | 36322 | HBR322-103 DBA80X80X8 | 45.717 |
| 72 | 36322 | HBR322-105 DBA80X80X8 | 57.595 |
| 73 | 36322 | HBR322-108 DBA100X100X10 | 90.871 |
| 74 | 36322 | HBR322-109 DBA100X100X10 | 94.928 |
| 75 | 36322 | HBR322-112 DBA80X80X8 | 60.480 |
| 76 | 36322 | HBR322-113 DBA80X80X8 | 60.711 |
| 77 | 36322 | HBR322-116 DBA100X100X10 | 94.980 |
| 78 | 36322 | HBR322-117 DBA100X100X10 | 90.779 |
| 79 | 36322 | HBR322-120 DBA80X80X8 | 57.826 |
| 80 | 36322 | MB322-102 ISMB125 | 32.997 |
| 81 | 36322 | MB322-103 ISMB125 | 38.775 |
| 82 | 36322 | MB322-108 ISMB125 | 18.620 |
| 83 | 36322 | MB322-109 ISMB125 | 18.635 |
| 84 | 36322 | MB322-113 ISMB125 | 63.430 |
| 85 | 36322 | MB322-124 ISMB200 | 35.656 |
| 86 | 36322 | MB322-125 ISMB125 | 18.809 |
| 87 | 36322 | MB322-130 ISMB200 | 35.654 |
| 88 | 36322 | MB322-131 ISMB200 | 51.302 |
| 89 | 36322 | MB322-132 ISMB250 | 158.576 |
| 90 | 36322 | MB322-133 ISMB250 | 158.576 |
| 91 | 36322 | MB322-134 ISMB200 | 83.602 |
| 92 | 36322 | MB322-136 ISMB150 | 30.296 |
| 93 | 36322 | MB322-138 ISMB125 | 15.802 |
| 94 | 36322 | MB322-139 ISMB125 | 7.895 |
| 95 | 36322 | MB322-141 WB300X150-12/12 | 372.934 |
| 96 | 36322 | MB322-144 ISMB125 | 7.290 |
| 97 | 36322 | MB322-148 WBOX200X200-16/16 | 289.333 |
| 98 | 36322 | MB322-149 WB300X150-12/12 | 182.418 |
| 99 | 36322 | MB322-152 ISMB150 | 30.258 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|-----|-------|---------------------------|-----------|
| 100 | 36322 | MB322-153 ISMB300 | 203.838 |
| 101 | 36322 | MB322-154 WB300X150-12/12 | 236.913 |
| 102 | 36322 | MB322-155 ISMB200 | 35.646 |
| 103 | 36322 | MB322-156 ISMB200 | 51.237 |
| 104 | 36322 | MB322-160 ISMB125 | 48.726 |
| 105 | 36322 | MB322-161 ISMB150 | 37.422 |
| 106 | 36322 | MB322-162 ISMB150 | 32.901 |
| 107 | 36322 | MB322-164 ISMB150 | 88.686 |
| 108 | 36322 | MB322-165 ISMB125 | 69.668 |
| 109 | 36322 | MB322-167 ISMB125 | 34.858 |
| 110 | 36322 | MB322-176 ISMB125 | 16.443 |
| 111 | 36322 | MB322-178 ISMC100 | 14.272 |
| 112 | 36322 | MB322-183 ISMB150 | 22.400 |
| 113 | 36322 | MB322-184 ISMB150 | 18.101 |
| 114 | 36322 | MB322-185 ISMB200 | 73.392 |
| 115 | 36322 | MB322-186 ISMB150 | 38.122 |
| 116 | 36322 | MB322-192 ISMB150 | 49.304 |
| 117 | 36322 | MB322-194 ISMB200 | 41.744 |
| 118 | 36322 | MB322-195 ISMC300 | 59.649 |
| 119 | 36322 | MB322-202 ISMB450 | 593.612 |
| 120 | 36322 | MB322-204 ISMB150 | 28.232 |
| 121 | 36322 | MB322-205 BC100 | 40.598 |
| 122 | 36322 | MB322-104 ISMB600 | 465.951 |
| 123 | 36322 | MB322-105 ISMB400 | 229.100 |
| 124 | 36322 | MB322-106 ISMB600 | 1,048.310 |
| 125 | 36322 | MB322-107 ISMB600 | 1,039.573 |
| 126 | 36322 | MB322-110 ISMB150 | 214.578 |
| 127 | 36322 | MB322-111 ISMB125 | 18.482 |
| 128 | 36322 | MB322-112 ISMB125 | 80.036 |
| 129 | 36322 | MB322-114 ISMB600 | 152.224 |
| 130 | 36322 | MB322-115 WB600X300-36/16 | 273.564 |
| 131 | 36322 | MB322-116 WB600X300-36/16 | 1,751.837 |
| 132 | 36322 | MB322-117 WB600X300-36/16 | 2,262.534 |
| 133 | 36322 | MB322-118 WB600X300-36/16 | 1,743.605 |
| 134 | 36322 | MB322-119 ISMB200 | 739.782 |
| 135 | 36322 | MB322-120 ISMB600 | 1,771.814 |
| 136 | 36322 | MB322-121 ISMC100 | 26.520 |
| 137 | 36322 | MB322-122 ISMC100 | 319.732 |
| 138 | 36322 | MB322-123 ISMC100 | 9.503 |
| 139 | 36322 | MB322-126 ISMB600 | 224.496 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|-----|-------|------------------------------------|-----------|
| 140 | 36322 | MB322-159 ISMB350 | 102.872 |
| 141 | 36322 | MB322-166 ISMB350 | 726.334 |
| 142 | 36322 | MB322-168 ISMB200 | 168.688 |
| 143 | 36322 | MB322-169 ISMB200 | 127.107 |
| 144 | 36322 | MB322-170 ISMB200 | 45.400 |
| 145 | 36322 | MB322-171 ISMB200 | 45.400 |
| 146 | 36322 | MB322-172 ISMB200 | 138.208 |
| 147 | 36322 | MB322-173 ISMB200 | 144.072 |
| 148 | 36322 | MB322-174 WB500X300-25/20 | 3,066.674 |
| 149 | 36322 | MB322-175 WB600X300-36/16 | 2,220.993 |
| 150 | 36322 | MB322-179 ISMB125 | 29.187 |
| 151 | 36322 | MB322-180 ISMB125 | 29.187 |
| 152 | 36322 | MB322-187 ISMB125 | 47.880 |
| 153 | 36322 | MB322-188 ISMB125 | 71.673 |
| 154 | 36322 | MB322-189 ISMC300 | 64.716 |
| 155 | 36322 | MB322-190 ISMC300 | 64.716 |
| 156 | 36322 | MB322-191 ISMB125 | 71.673 |
| 157 | 36322 | MB322-196 ISMB125 | 53.188 |
| 158 | 36322 | MB322-197 ISMB500 | 352.832 |
| 159 | 36322 | MB322-198 ISMB200 | 191.883 |
| 160 | 36322 | MB322-200 ISMB500 | 748.413 |
| 161 | 36322 | MB322-201 ISMB250 | 80.788 |
| 162 | 36322 | MB322-203 NPB500X200X90.68 | 779.961 |
| 163 | 36322 | MB322-127 WB700X300-20/16 | 398.810 |
| 164 | 36322 | MB322-128 WB700X300-20/16 | 345.680 |
| 165 | 36322 | MB322-129 WB700X300-20/16 | 5,062.572 |
| 166 | 36322 | MB322-140 ISMB200 | 90.934 |
| 167 | 36322 | MB322-142 ISMB250 | 58.588 |
| 168 | 36322 | MB322-143 ISMB450 | 1,066.042 |
| 169 | 36322 | MB322-146 ISMB200 | 86.028 |
| 170 | 36322 | MB322-157 WB700X300-20/16 | 216.044 |
| 171 | 36322 | MB322-158 WB700X300-20/16 | 286.884 |
| 172 | 36322 | MB322-181 ISMB125 | 79.804 |
| 173 | 36322 | BEAM 125 X 70 -IS2062E250A(FE410W) | 1,608.000 |
| 174 | 36810 | FLOOR GRILL 32 X305X6000 | 2,151.400 |
| 175 | 36810 | FLOOR GRILL 32 X515X6000 | 4,935.525 |
| 176 | 36810 | FLOOR GRILL 32 X995X6000 | 7,998.030 |
| 177 | 36810 | FLAT 6 | 1,884.000 |
| 178 | 36810 | PLATE 5 | 251.200 |
| 179 | 36820 | STAIR-1 | 1,220.348 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|--|-------|--|-------------------|
| 180 | 36850 | ERW TUBE DIA 42.4X3.2 | 1,299.200 |
| 181 | 36850 | ERW TUBE DIA.42.4X3.2 | 1,856.000 |
| 182 | 36850 | ERW TUBE DIA 42.4X3.2 | 66.260 |
| 183 | 36850 | ERW TUBE DIA 42.4X3.2 | 92.800 |
| 184 | 36850 | 90DEG.BEND TUBE DIA 42.4X3.2 | 282.800 |
| 185 | 36850 | 135DEG BENDTUBE D42.4X3.2 | 20.360 |
| 186 | 36850 | 135DEG BENDTUBE D42.4X3.2 | 11.720 |
| 187 | 36850 | ""C"" BEND TUBE" D42.4X3.2 | 8.720 |
| 188 | 36850 | ""C"" BEND TUBE" D42.4X3.2 | 15.340 |
| 189 | 36850 | SPL.BEND TUBE D42.4X3.2 | 19.544 |
| 190 | 36850 | ERW TUBE DIA 42.4X3.2 | 1,855.800 |
| 191 | 36850 | ISA 75X75X6 | 136.000 |
| Sub Total (Structure) | | | 84,188.397 |
| 1 | 33210 | CASTABLEREFRACTORY GR A | 9,320.000 |
| 2 | 33230 | POURABLE INSULATION | 3,325.000 |
| 3 | 33321 | WOOL-100KG/CU.M-60MM-BOTH SIDE GI WIRENE | 7,000.000 |
| 4 | 33321 | WOOL-100KG/CU.M-60MM-ONE SIDE GI WIRENET | 18,395.000 |
| 5 | 33321 | WOOL-100KG/CU.M-50MM-BOTH SIDE GI WIRENE | 1,320.000 |
| 6 | 37810 | CORRU.ALU.SHEET 1.6 X920X1600-QTY-85NOS | 707.880 |
| 7 | 32310 | FIXING PIN L - 185 | 333.740 |
| 8 | 32310 | RETAINER TYPE-A | 496.540 |
| 9 | 32310 | AL CASING SUPPORT 03-650L | 408.000 |
| 10 | 32310 | TAPSCREW-ST 4.2X13C | 56.300 |
| 11 | 32310 | WIRE DIA 1.219 MM - GI - IS280 | 140.000 |
| 12 | 32310 | WIRE DIA 0.711 MM - GI - IS280 | 60.000 |
| 13 | 32310 | PLAIN ALUM SHT 0.914 MM IS737/19000H2 | 3,256.660 |
| 14 | 32310 | NUT -M10 -CL4-IS1363P3 | 2.180 |
| 15 | 32310 | SHEET 1.6 MM | 165.060 |
| 16 | 32310 | SHEET:3.15 | 296.736 |
| 17 | 32310 | WELD STUD M10 | 47.306 |
| 18 | 32310 | WASHER A11 | 10.000 |
| 19 | 32310 | BENT SHEET | 361.880 |
| 20 | 32310 | BRACKET | 94.394 |
| 21 | 32310 | SUPPORT SHEET | 19.260 |
| 22 | 32310 | CASING SUPPORT | 181.350 |
| 23 | 32310 | SHEET 2 | 176.610 |
| 24 | 32310 | ROD D 6.0 MM-IS2062GRA SAE1010/SAE1018 | 26.640 |
| 25 | 32310 | RETAINER TYPE 'C' | 92.400 |
| Sub Total (Insulation and Refractory) | | | 46,292.936 |
| 1 | 95088 | PIGTAIL CABLE (SKY BLUE) WITH CONNECTOR | 10.000 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|----|-------|--|-----------|
| 2 | 95091 | CABLE TRAY-50 MM WIDTH | 450.000 |
| 3 | 95091 | CABLE TRAY-100 MM WIDTH | 1,200.000 |
| 4 | 95091 | 2P X 0.5 SQMM P/O SHIELDED INST. CABLE | 174.000 |
| 5 | 95091 | 4P X 0.5 SQMM P/O SHIELDED INST. CABLE | 306.000 |
| 6 | 95091 | 8P X 0.5 SQMM P/O SHIELDED INST. CABLE | 308.000 |
| 7 | 95091 | FRP JUNCTION BOX-24 WAY | 36.000 |
| 8 | 95091 | FRP JUNCTION BOX-48 WAY | 40.000 |
| 9 | 95091 | 3C X 2.5 SQ. MM CONTROL CABLE | 270.000 |
| 10 | 95091 | 10C X 2.5 SQ. MM CONTROL CABLE | 600.000 |
| 11 | 95091 | GLAND-WP-BRASS-NI-UN-ARM-9-11 | 11.250 |
| 12 | 95091 | GLAND-WP-BRASS-NI-UN-ARM-11-13 | 11.250 |
| 13 | 95091 | GLAND-WP-BRASS-NI-UN-ARM-13-17 | 12.000 |
| 14 | 95091 | GLAND-WP-BRASS-NI-UN-ARM-17-20 | 10.000 |
| 15 | 95091 | GLAND-WP-BRASS-NI-UN-ARM-20-23 | 10.000 |
| 16 | 95091 | CRIMPING LUGS - RING TYPE - 0.5SQ.MM | 2.000 |
| 17 | 95091 | CRIMPING LUGS - RING TYPE - 2.5SQ.MM | 2.000 |
| 18 | 95091 | CRIMPING LUGS ROUND PIN TYPE - 0.5 SQ.MM | 0.500 |
| 19 | 95091 | CRIMPING LUGS ROUND PIN TYPE - 2.5 SQ.MM | 0.500 |
| 20 | 95091 | CRIMPING LUGS FLAT PIN TYPE - 0.5 SQ.MM. | 0.500 |
| 21 | 95091 | CRIMPING LUGS FLAT PIN TYPE - 2.5 SQ.MM. | 0.500 |
| 22 | 95091 | COPPER TUB END SEAL FERRULE - 0.5 SQ.MM | 0.396 |
| 23 | 95091 | COPPER TUB END SEAL FERRULE - 2.5 SQ.MM | 0.688 |
| 24 | 95091 | CABLE TAGS | 33.000 |
| 25 | 95091 | CABLE DRESSING MATERIALS | 1.500 |
| 26 | 95091 | CABLE DRESSING MATERIALS | 6.000 |
| 27 | 95091 | ANGLE 50 X 50 X 6 -IS2062E250A(FE410W) | 135.000 |
| 28 | 95091 | CHANNEL 100 X 50 -IS2062E250A(FE410W) | 191.200 |
| 29 | 95091 | FLAT 50 X 6 - IS2062GRA | 47.200 |
| 30 | 95091 | WIRE DIA 1.219 MM - GI - IS280 | 6.750 |
| 31 | 95091 | ADAPTER 1/2 NPT(M) -3/4" BSC (F)THREADED | 1.500 |
| 32 | 95091 | CABLE TRAY-150 MM WIDTH | 2,090.000 |
| 33 | 98282 | SOFA AFM ACCESSORIES | 180.500 |
| 34 | 98590 | CHANNEL 100 X 50 -IS2062E250A(FE410W) | 478.000 |
| 35 | 98590 | ANGLE 50 X 50 X 6 -IS2062E250A(FE410W) | 225.000 |
| 36 | 98590 | FLAT 50 X 6 - IS2062GRA | 118.000 |
| 37 | 97591 | BURNER TILT SHEAR PIN FAILURE INDI. BOX | 8.000 |
| 38 | 97591 | HEAVY DUTY LIMIT SWITCH | 3.600 |
| 39 | 97592 | CONNECTOR,1/2" NPT(F) X 1/4" OD, SS | 9.600 |
| 40 | 97592 | CONNECTOR,1/2" NPT(F) X 3/8" OD, SS | 1.000 |
| 41 | 97592 | CONNECTOR,1" NPT(M) X 1" OD, SS | 4.400 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

| | | | |
|--------------|-------|--|---------------------|
| 42 | 97592 | CONNECTOR,1/4" NPT(M) X 1/4" OD, SS | 11.000 |
| 43 | 97592 | CONNECTOR,3/8" NPT(M) X 3/8" OD, SS | 1.600 |
| 44 | 97592 | CONNECTOR,3/8" NPT(M) X 1/4" OD, SS | 5.400 |
| 45 | 97592 | EQUAL TEE UNION, 1/4", SS | 9.000 |
| 46 | 97592 | EQUAL TEE UNION, 3/8", SS | 1.350 |
| 47 | 97592 | STRAIGHT CONNECTOR,1/4" OD, SS | 4.500 |
| 48 | 97592 | BULKHEAD CONNECTOR,1/4" BSP(M) X 1/4" OD | 5.400 |
| 49 | 97592 | ELBOW,1/4" BSP(M) X 1/4" BSP(F), SS | 4.500 |
| 50 | 97592 | TAPE, 1/2" -10 METERS, TEFLON | 0.900 |
| 51 | 97592 | FERRULES, 1/4", SS | 1.100 |
| 52 | 97592 | NUTS, 1/4", SS | 3.300 |
| 53 | 97592 | ALUMINIUM STRIPS - 300 MM X 25 MM X 3 MM | 10.260 |
| 54 | 97592 | 1/4" OD SS TUBE | 210.000 |
| 55 | 97592 | 3/8" OD SS TUBE | 7.775 |
| 56 | 97592 | 1" TEFLON HOSE- 3 METER PER PIECE | 12.000 |
| 57 | 97592 | 1/4" TEFLON HOSE- 2 METER PER PIECE | 17.520 |
| 58 | 97592 | 1" AIR-FILTER REGULATOR FOR SADC SYSTEM | 13.600 |
| 59 | 98282 | SOLENOID VALVE-NC | 12.000 |
| 60 | 98282 | SOLENOID VALVE-NO | 12.000 |
| 61 | 97591 | HEAVY DUTY LIMIT SWITCH | 2.700 |
| 62 | 97591 | 1" AIR-FILTER REGULATOR FOR SADC SYSTEM | 2.000 |
| | | | 7,343.739 |
| Total | | | 2,89,514.787 |

Note:

1. The weights given above are tentative and for one unit only.
- 2 Besides product groups indicated herein, there is likelihood of addition of new product groups by BHEL's unit for release of some items, integral to this work. Tenderers' quoted unit rates shall be applicable for such product groups also.
3. The weights given against PGMA's listed above are tentative. It may change after detailed engineering is done. Rate quoted by the Contractor shall not change due to variation in weight.
4. Rate Schedule Identified for PGMA's of Piping and Insulation are Indicative only and based on envisaged material specification. Payment shall be made on the basis of material specification of actual material received and erected at site.
5. BHEL's decision with regard to classification of a particular product group for applicable rate category shall be final & binding on the Contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XIV Annexure-A: Shipping List

6. Besides the above, weight of all temporary piping, valves, pumps, tanks and other miscellaneous equipments etc. for carrying out hydraulic test, chemical cleaning, steam blowing and other tests, as stated elsewhere will get added.

6. There will be no payment for consumables like welding electrode /filler wire, gases

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XV Testing, Pre-Commissioning and Commissioning

15.1 Testing, pre-commissioning, & commissioning will involve, though not limited to these, various testing e.g. hydro-static pressure, ~~pressure decay tests, leak test, trial runs of equipments; flushing by air, water, oil, steam as applicable; checking/setting various clearances/ parameters, ensuring operation of various equipments free of undue restrictions, chemical (EDTA) cleaning & alkali boil out of boiler, steam blowing of the boiler and the critical piping, floating of safety valves, coal firing, trial operation and loading etc.~~ are some of these activities. ~~All the activities for commissioning of the set, as informed by BHEL from time to time shall be completed.~~

15.2 All these tests should be repeated till all the equipments satisfy the requirement / obligations of BHEL to their client and also the relevant statutory authority.

15.3 Contractor shall lay / install necessary temporary piping, pumps, valves, blanks, gauges, cables, switches etc. for conduct of chemical cleaning, steam / air blowing etc. this may involve cutting of some portion of existing piping / valves, placing of rubber wedges / blanks in the valves and other openings, fabrication and installation of temporary tanks for chemical mixing, temporary access platforms to mixing tanks etc. Where required, bends have to be fabricated / formed at site from random length / size of pipes / structural steel. Temporary installation itself has to be tested, tried, and subject to non-destructive examinations as per the instructions of BHEL as part of work.

No payment will be made for temporary installations made for hydraulic testing of various systems & piping. Similarly no payment will be made for electrical installations made for any temporary system.

15.4 All materials, equipments necessary for installation of temporary system as above will be supplied by BHEL as free returnable issue in random sizes / lengths. However, servicing, fabrication, erection, dismantling of the same after completion of the process, and handing over back to BHEL stores will be the responsibility of the Contractor.

In accounting of materials following wastage allowances are provided:

1. Structural items: 5%

2. Pipes: 3%

No wastage allowance for valves & other equipment's.

15.5 Fabrication, fit-up, pre-heating, welding, post-weld heating and post-weld-heat treatment if any, of requisite blanks for conduct of hydraulic test / leakage test is part of work (If required). Similarly, removal of blanks, restoration and normalization of the concerned system / line is to be done as part of work. BHEL will provide the material for blanks free of charge. No separate payment is envisaged for these activities.

15.6 Contractor shall cut / open / dismantle work, if needed, as per BHEL Engineer's instructions during commissioning for inspection, checking and make good the works after inspection is over.

15.7 Similarly, during the course of erection, if certain portion of equipments erected by the Contractor has to be undone for enabling other Contractors / agencies of BHEL / customer to carry out their work, Contractor shall carry out such jobs expeditiously and promptly and make good the job after completion of work by other Contractors / agencies of BHEL / customer as per BHEL engineer's / agencies of BHEL / customers instructions. Claims, if any, in this regard shall be governed as clauses of General conditions of contract.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XV Testing, Pre-Commissioning and Commissioning

15.8 The Contractor shall carry out any tests as desired by BHEL engineer on erected equipment covered under the scope of this contract during testing, pre-commissioning and commissioning, to demonstrate the completion of any part or whole of work performed by the Contractor.

15.9 During trial runs/ tests, pre-commissioning / commissioning, replacing / changing mechanical / other seals of equipments like pumps, removal and cleaning / replacing of filters etc. is within the scope of work. Replacement spares for this purpose will be provided by BHEL.

15.10 It shall be specifically noted that the Contractor may have to work round the clock during the pre-commissioning and commissioning period along with BHEL Engineers and hence considerable overtime payment is involved. The Contractor's quoted rates shall be inclusive of all these factors.

15.11 During the pre commissioning and commissioning period Contractor shall make available the services of separate dedicated labor force comprising of suitable skilled and semi/un-skilled hands along with necessary tools and plants, consumables etc.

15.12 Conducting of performance guarantee test is in the scope of work. Contractor shall install all necessary tapping points; instruments etc. and provide necessary assistance in this regard. In case PG test is getting delayed beyond the contract period (normal plus extension if any) due to reasons not attributable to the Contractor, PG test issue will be mutually discussed and decided.

15.13 However installation of necessary tapping points, impulse pipes, approaches etc. are to be completed by the contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – XVI List of components to be dismantled, preserved and Re-use

**Components to be dismantled handed over to customer (In the condition as it is)
and reinstalled for combustion modification**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XVI List of components to be dismantled, preserved and Re-use

List of existing electrical and C&I related components which are to be retained/reused are given below. Any sort of repair/ replacement of these components are excluded from the scope of supply of this "Combustion modification" offer and the same shall be taken care by customer.

| SL | Description | Remarks |
|-----|--|---------------|
| 1. | Flame scanner Head assemblies and cables, Cooling air piping, Scanner hoses. | As applicable |
| 2. | Cable trays and cables which are not covered in scope of supply | As applicable |
| 3. | Existing SADC I/P converters, 1/4" Air Filter Regulator in existing SADC signal airline, Existing SADC signal air Line pressure switches. | As applicable |
| 4. | Existing secondary air flow measurement element and transmitter along with cable and accessories. | As applicable |
| 5. | Wind box to Furnace DP Transmitters, associated cabling and impulse piping. | As applicable |
| 6. | Pressure gauges in Corner skid for oil and atomizing medium. | As applicable |
| 7. | Tapping point for any Instrument in water wall. | As applicable |
| 8. | Existing Corner oil skid, instruments in oil line, trip valves, and control valves along with all associated cables. | As applicable |
| 9. | Existing instruments in air and flue gas path, associated cabling, field JBs and impulse piping. | As applicable |
| 10. | Instrument air GI piping from existing instrument air header to existing instruments/ equipment. | As applicable |
| 11. | All existing cables between existing SADC actuators I/P, pressure switch and SADC/FSSS panel. (including field cables till local JB) | As applicable |
| 12. | All existing cables between existing corner oil skid, HEA ignitors, oil gun, LGM box and FSSS panel (including field cables till local JB) | As applicable |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – XVI List of components to be dismantled, preserved and Re-use

| | | |
|----|--|---------------|
| 13 | All existing Field Junction Boxes and field cables will be retained. | As applicable |
| 14 | All existing Power, Control and Instrumentation cables for Soot Blowers. | As applicable |
| 15 | Furnace Flame Viewing System. | As applicable |
| 16 | Acoustic Steam Leak Detection system. | As applicable |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – XVI List of components to be dismantled, preserved and Re-use

5.0 Components to be dismantled, preserved and reused

Components to be dismantled, handed over to customer (in the condition as it is) and reinstalled for combustion modification package.

List of existing mechanical components which are to be retained/reused are given below. Any sort of repair/ replacement of these components are excluded from the scope of supply of this "Combustion modification" offer and the same shall be taken care by customer.

| S.No | Components | Remarks |
|-------------|--|----------------|
| 1. | HEA ignitor assemblies, Ignitor fittings | As applicable |
| 2. | Burner Tilt Power cylinders | As applicable |
| 3. | SADC actuators | As applicable |
| 4. | Oil gun vice assy and rack | As applicable |
| 5. | Air cooled oil gun assemblies | As applicable |
| 6. | Burner station skid assemblies | As applicable |
| 7. | Corner station valves & fittings | As applicable |
| 8. | Corner station piping | As applicable |
| 9. | Oil gun maintenance box, | As applicable |
| 10. | Coal piping, coal pipe couplings, supports etc. | As applicable |
| 11. | Instruments (ASLD, etc.) | As applicable |
| 12. | Buckstays in the Wind box and BOFA locations | As applicable |
| 13. | Soot blowers | As applicable |
| 14. | Soot blower piping | As applicable |
| 15. | Any other piping, supports, valves and fittings etc. | As applicable |
| 16. | Structural components like Hand rails, platforms, floor gratings, stair cases, ladders | As applicable |
| 17. | Misc. structural items (Channels, Angles, Beams etc.) | As applicable |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XVI List of components to be dismantled, preserved and Re-use

Note: The components Dismantled, preserved and reused as per the instruction of BHEL engineer shall be paid as per MT rate. (Classification of BHEL Engineer in this regard shall be final and binding on the Contractor.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – XVII BILL OF QUANTITIES AND WEIGHTAGE OF INDIVIDUAL ITEMS

JOB Description: Material Receipt, Unloading, Storage, record keeping ,Preservation, Handling and Conservation of the Equipment at site, Erection, Commissioning & Testing of Combustion Modification System to reduce NOx level at Unit 7 (500MW) of NTPC Ramagundam TPS.

| Sl No | Description of Item | UOM | Weightage | Quantity |
|-------|---|------------|----------------------------|----------|
| 1 | PART A: Material Management | | | |
| 1.1 | Material Handling | | | |
| 1.1.a | Unloading Weight | MT | 0.03714951772929450 | 262 |
| 1.1.b | Outgoing Material | MT | 0.00345893258085042 | 25 |
| 1.1.C | Hydra | Months | 0.04985508345258760 | 5 |
| | Subtotal Part A | | | |
| 2 | PART B : Erection and Commissioning (per Unit) | | | |
| 2.1 | Dismantling Weight | MT | 0.10997597028486900 | 100 |
| 2.2 | Erection Weight | MT | | 210 |
| 2.2.a | Pressure Parts | MT | 0.09766992765920800 | 9 |
| 2.2.b | Structures | MT | 0.08212153580845600 | 27 |
| 2.2.c | Ducting/NPP | MT | 0.38331783739163100 | 128 |
| 2.3 | Insulation | MT | 0.16492807577036900 | 46 |
| 2.4 | Electrical and C&I | Lumpsum | 0.07152311932273460 | |
| | Subtotal Part B | | | |
| 3 | Part C: Manpower** | | | |
| a | Secretarial Services (1 Semi Skilled) | Man months | | 8 |
| b | Menial Services (2 Unskilled) | Man months | | 16 |

Note :

1. Total amount for **Part C : Manpower**** is prefixed and breakup for **Part C: Manpower** is as follows. Same is incorporated in “Vol-II- Price Bid” for calculation.

| Part C: Manpower** | | | | | |
|--|---------------------------------------|------------|----------|----------------|-----------------|
| Sl No | Description of Item | UOM | Quantity | Man Month Rate | Amount |
| a | Secretarial Services (1 Semi Skilled) | Man months | 8 | 18036.72 | 144293.76 |
| b | Menial Services (2 Unskilled) | Man months | 16 | 15397.20 | 246355.20 |
| Total amount for Part C: Manpower | | | | | 3,90,649 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – XVII BILL OF QUANTITIES AND WEIGHTAGE OF INDIVIDUAL ITEMS

Instructions to the bidders regarding Price Bid (Schedule of Rates & Quantities) and its Calculations:

1. BILL OF QUANTITIES AND % WEIGHTAGE OF INDIVIDUAL ITEMS consist of following.
 - a. **PART A: Material Management**
 - b. **PART B : Erection and Commissioning**
 - c. **Part C : Manpower**
2. Bidders shall quote Total Lump-sum Price **only for PART A: Material Management, PART B: Erection and Commissioning** at the place implanted in the E-Procurement Portal titled as "**VoLIIPriceBid2365**". Price mentioned elsewhere in the offer of the bidder shall be treated as Null and Void.
3. Total amount for ****Part C : Manpower** is prefixed and breakup for **Part C: Manpower** is mentioned above. Same is incorporated in "Vol-II- Price Bid" for deriving total price.
4. Grand total price shall be based on Total summation of prices **PART A: Material Management, PART B: Erection and Commissioning and Part C : Manpower**
5. BHEL has fixed the weightages for individual items covered under Part-A & Part-B w.r.t. the total price quoted by bidder of Price Bid Vol-II
6. Based on the pre-fixed weightages as mentioned above, amount of individual items shall be derived by BHEL.
7. Based on the quantities of individual item and the amount arrived in SI No 6 above, item rate of individual items shall be derived by BHEL. This item rate shall be rounded off up to two decimal places and shall be used to calculate the total amount.
8. For the convenience of bidders, BHEL has issued an excel sheet with all requisite formulae as detailed above. **However, this excel sheet shall not form part of contract document. Further, this sheet should not be uploaded at the e-Portal.**
9. Bidders to note that this is an 'Item rate contract'. Payment shall be made for the actual quantities of work executed at the Unit rate arrived as mentioned above.