

TENDER SPECIFICATION No.

BHE/PW/PUR/VNSR-ESP PKG-III/1591

FOR

Package-III: Dismantling of Existing ESP Internals & other components, Disposal of the same to scrap yard, Transportation of materials from Customer storage to site of work and carrying out modifications as required, Erection, Testing & commissioning and Application of Insulation/cladding for the work of Renovation & Retrofitting of existing Electrostatic Precipitators & ducts for Package-III consists of 3x210 MW sets.

AT

Vindhyachal Super Thermal Power Station- Vindhyachal
District: Singrauli, State:MP

TECHNICAL BID SPECIFICATION - VOLUME- I

TENDER SPECIFICATIONS CONSISTS OF:

- **Notice Inviting Tender**
- **Volume 1 A - Technical Conditions of Contract,**
- **Volume 1 B - Special conditions of Contract,**
- **Volume 1 C - General conditions of Contract**
- **Volume 1 D - Forms & Procedures**



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

TENDER SPECIFICATION No.

BHE/PW/PUR/VNSR-ESP PKG-III/1591

For

Dismantling of Existing ESP Internals & other components, Disposal of the same to scrap yard, Transportation of materials from Customer storage to site of work and carrying out modifications as required, Erection, Testing & commissioning and Application of Insulation/cladding for the work of Renovation & Retrofitting of existing Electrostatic Precipitators & ducts for **3X210 MW sets**.

AT

Vindhyachal Super Thermal Power Station- Vindhyachal
District: Singrauli, State:MP

EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR TENDER SUBMISSION: Refer Notice Inviting Tender

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

M/s.

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PLEASE NOTE: THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)
Place: Nagpur
Date:

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| Volume No | Description | Hosted in website bhel.com as files titled |
|-----------|------------------------------------|---|
| NIL | Tender Specification Issue Details | (Part of <u>Vol-IA-1591</u>) |
| NIL | Notice Inviting Tender | (Part of <u>Vol-IA-1591</u>) |
| I-A | Technical Conditions of Contract | Vol-IA-1591 |
| I-B | Special Conditions of Contract | Vol-IBCD-1591 |
| I-C | General Conditions of Contract | (Part of <u>Vol-IBCD-1591</u>) |
| I-D | Forms & Procedures | (Part of <u>Vol-IBCD-1591</u>) |
| II | Price Bid Specification | Vol-II-1591 |

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1591

NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



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Ref: BHE/PW/PUR/VNSR-ESP PKG-III/1591

Date: 18/01/2016

NOTICE INVITING TENDER (NIT)

NOTE: BIDDER MAY DOWNLOAD FROM WEB SITES OR PURCHASE TENDERS FROM THIS OFFICE ALSO.

To

Dear Sir/Madam

Sub: NOTICE INVITING TENDER

Sealed offers in two part bid system are invited from reputed & experienced bidders (meeting [PRE QUALIFICATION CRITERIA](#) as mentioned in Annexure-I) 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

| SL NO | ISSUE | DESCRIPTION |
|-------|-----------------------------------|---|
| i | TENDER NUMBER | BHE/PW/PUR/VNSR-ESP PKG-III/1591 |
| ii | Broad Scope of job | Package-III: Dismantling of Existing ESP Internals & other components, Disposal of the same to scrap yard, Transportation of materials from Customer storage to site of work and carrying out modifications as required, Erection, Testing & commissioning and Application of Insulation/cladding for the work of Renovation & Retrofitting of existing Electrostatic Precipitators & ducts for 3X210 MW sets AT Vindhyachal Super Thermal Power Station-Vindhyachal District: Singrauli, State:MP |
| 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> |

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|----|--|--|-------------------|
| 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>Technical Specifications and Plot Plan</i> | <i>Applicable</i> |
| f | Volume-II | <i>Price Schedule</i> | <i>Applicable</i> |
| iv | Issue of Tender Documents | <p><u>1. Sale from BHEL PS Regional office at :</u> Start : 18/01/2016 , Closes: 10/02/2016 , Time : 16.00 Hrs</p> <p>2. From BHEL website (www.bhel.com) Tender documents will be available for downloading from website till due date of submission</p> | <i>Applicable</i> |
| v | DUE DATE & TIME OF OFFER SUBMISSION | <p><u>Date : 11/02/2016, Time 15.00 Hrs</u> <u>Place : BHEL PS Regional office at :Nagpur</u></p> <p>Tenders being submitted through representative shall be submitted at dispatch section of PSWR HQ Office after making entry/registration at the reception. For any assistance on the matter kindly contact following officials:</p> <ul style="list-style-type: none"> • Pratish Gee Varghese / Sr Engineer (Purchase) • Neeraj Tiwari / Sr Engineer (Purchase) • Shivkesh Meena / Engineer (Purchase) | <i>Applicable</i> |
| vi | OPENING OF TENDER | <p><u>1 hours after the latest due date and time of Offer submission</u></p> <p>Notes: (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</p> | <i>Applicable</i> |

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| | | <i>tenders get extended to the next working day. (2) Bidder may depute representative to witness the opening of tender</i> | |
| vii | EMD AMOUNT | <i>Rs 2,00,000/- (Rupees Two Lakhs Only)</i> | <i>Applicable</i> |
| viii | COST OF TENDER | <i>Rs 2000/-. (Rupees Two Thousand Only)</i> | <i>Applicable</i> |
| ix | LAST DATE FOR SEEKING CLARIFICATION | <i>Five days before the due date of offer submission. Along with soft version also, addressing to undersigned & to others as per contact address given below</i> | <i>Applicable</i> |
| x | SCHEDULE OF Pre Bid Discussion (PBD) | | <i>Not Applicable.</i> |
| xi | INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM) | Shri D.R.S Chaudhary, IAS (Retd.) Flat No. L-202 & L-203 (1st Floor) Ansal Lake View Enclave Shamla Hills Bhopal- 462 013 (M.P.) Email: dilip.chaudhary@icloud.com | <i>Applicable</i> |
| 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 Corrigendums) 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 & stamped on each page, as part of offer. Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in

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the techno-commercial offer other than the Price Bid and shall not be entertained.

- 3.0 Unless specifically stated otherwise, bidder shall remit cost of tender and courier charges if applicable, in the form of Demand Draft drawn in favour of Bharat Heavy Electricals Ltd, payable at Power Sector Regional HQ at Nagpur issuing the Tender, along with techno-commercial offer. Bidder may also choose to deposit the Tender document cost by cash at the Cash Office as stated above against SL no IV of 1, on any working day; and in such case copy of Cash receipt is to be enclosed with the Techno Commercial offer. Sale of tender Documents shall not take place on National Holidays, holidays declared by Central or State Governments and BHEL PS HQ at Nagpur, Sundays and second/ last Saturdays
- 4.0 Unless specifically stated otherwise, bidder shall deposit EMD through Demand Draft/Pay Order in favour of Bharat Heavy Electricals Ltd, payable at Nagpur. For other details and for 'One Time EMD' please refer General Conditions of Contract.
- 5.0 **Procedure for Submission of Tenders:** 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/COST OF TENDER)' in two separate sealed and super scribed envelopes (ENVELOPE-I & ENVELOPE-II)
 - PART-II (Price Bid) - in sealed and super scribed 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)**

| Sl no | Description | Remarks |
|-------|--|---------|
| | Part-I A | |
| | ENVELOPE – I super scribed 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 | |

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| | <p>format to be placed after document under sl no (i) above.</p> <p>Note:</p> <p>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.</p> <p>b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding.</p> <p>i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL</p> <p>ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender</p> | |
| iii. | <p>Supporting documents/ annexure/ schedules/ drawing etc as required in line with Pre-Qualification criteria.</p> <p>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.</p> | |
| 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</u> Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc | |
| ix. | Volume – I B : Special Conditions of Contract (SCC) | |
| x. | Volume – I C : General Conditions of Contract (GCC) | |
| xi. | Volume – I D : Forms & Procedures | |
| xii. | <i>Volume-IE: Technical Specification Section-C, Section D and Plot Plan</i> | |
| xiii. | Volume – II (UNPRICED – without disclosing rates/price, but mentioning only ‘QUOTED’ or ‘UNQUOTED’ against | |

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| | each item | |
| xiv. | Any other details preferred by bidder with proper indexing. | |

| PART-I B | | |
|-----------------|--|--|
| | <p><u>ENVELOPE – II super scribed as:</u> PART-I (EMD/COST of TENDER) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION:</p> <p>CONTAINING THE FOLLOWING:-</p> | |
| i. | <p>1. Earnest Money Deposit (EMD) in the form as indicated in this Tender</p> <p align="center">OR</p> <p>Documentary evidence for ‘One Time EMD’ with the Power Sector Region of BHEL floating the Tender</p> <p>2. Cost of Tender (Demand Draft or copy of Cash Receipt as the case may be)</p> | |

| PART-II | | |
|----------------|--|--|
| | PRICE BID consisting of the following shall be enclosed | |
| | <p><u>ENVELOPE-III</u> Super scribed as: PART-II (PRICE BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION:</p> <p>CONTAINING THE FOLLOWING</p> | |
| 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 | | |
|--------------------|--|--|
| | ENVELOPE-IV (MAIN ENVELOPE / OUTER ENVELOPE) Super scribed as: | |

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|---|--|--|
| | TECHNO-COMMERCIAL BID, PRICE BID & EMD TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION: CONTAINING THE FOLLOWING: | |
| i | <ul style="list-style-type: none">○ Envelopes I○ Envelopes II○ Envelopes III | |

SPECIAL NOTE: All documents/ annexures submitted with the offer shall be properly annexed and placed in respective places of the offer as per enclosure list mentioned in the covering letter. BHEL shall not be responsible for any missing 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:**

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

- I. **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 'Load' is the sum of the unit wise identified packages (refer Table-1) for contracts with BHEL Regions. The cut off month for reckoning 'Load' shall be the month, two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:

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(Note: For example if latest bid submission is in Aug 2011, then the 'load' shall be calculated upto and inclusive of June 2011)

i). Total number of Packages

Total number of Packages in hand = P

Where

- 'P' is the sum of all unit wise identified packages under execution with BHEL Regions as of the cut off month defined above, including packages yet to be commenced, excepting packages which are on HOLD due to reasons not attributable to Bidder..

II. **PERFORMANCE:** Here 'Monthly Performance' of the bidder for all the packages (**under execution/** executed during the 'Period of Assessment' in all the 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 the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the month two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:

(Note: For example if 'latest date of bid submission' is in Aug 2011, then the 'performance' shall be assessed for a 6 month period upto and inclusive of June 2011, for the entire 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) P₁, P₂, P₃ , P₄ , P₅ , P_N etc be the packages (**under execution/** executed during the 'Period of Assessment' in all Regions) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of

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similar packages for all Regions = **P_T** (ie $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$)

- 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-N}) for similar package P₁, for the 'period of assessment' 'T₁' (i.e $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots + S_{1-N}$). 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_{BEHL}' 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 package for which performance should have been evaluated in all the Regions

$$= \frac{S_T}{T_T}$$

- 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**

| Sl n o | Item Description | Details for all Regions | Total |
|--------------|---------------------|-------------------------|-------|
|--------------|---------------------|-------------------------|-------|

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| (i) | (ii) | (iii) | (iv) | (v) | (vi) | (vii) | (viii) | (ix) | (x) |
|-----|---|---|---|---|---|---|-----------|---|---|
| 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 ie 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 Package (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 ₂₋₁ , S ₂₋₂ , S ₂₋₃ , S ₂₋₄ , ... | S ₃₋₁ , S ₃₋₂ , S ₃₋₃ , S ₃₋₄ , ... | S ₄₋₁ , S ₄₋₂ , S ₄₋₃ , S ₄₋₄ , ... | S ₅₋₁ , S ₅₋₂ , S ₅₋₃ , S ₅₋₄ , ... | | S _{N-1} , S _{N-2} , S _{N-3} , S _{N-4} , ... | ----- |
| 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 |

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- ii) Calculation of Overall 'Performance Rating' (R_{BHEL}) in case 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during 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 packages, divided by the total number of Package months for which evaluation should have been done. ' R_{BHEL} ' 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.
b) 12 months preceding the cut-off month
c) 24 months preceding the cut-off month
d) 36 months preceding the cut-off month

In case, R_{BHEL} 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 (R_{BHEL}) at Power Sector Regions.:

| Sl no | Overall Performance Rating (R_{BHEL}) | 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 |

III. '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 $P_{Max} = (R_{BHEL} - 60)$ divided by corresponding value of 'L'

i.e. $(R_{BHEL} - 60)/L$

Note:

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- 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 $R_{BHEL} = 60$, $P_{Max} = '1'$
 - iii. For $R_{BHEL} \geq 80$, 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 9.I)

IV. Explanatory note:

- a) Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or CI, 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, CI, 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 (ie Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above
- b) Identified Packages (Unit wise)

Table-1

| | Civil | Electrical & CI | Mechanical |
|--|--|---------------------------|--|
| | i). Enabling works | i). Electrical | i). Boiler & Aux (All types including CW Piping if applicable) |
| | ii). Pile and Pile Caps | ii). CI | ii). Power Cycle Piping/Critical Piping |
| | iii). Civil Works including foundations | iii). Others (Elect & CI) | iii). LP Piping |
| | iv). Structural Steel Fabrication & Erection | | iv). ESP |
| | v). Chimney | | v). Steam Turbine Generator set & Aux |
| | vi). Cooling Tower | | vi). Gas Turbine Generator set & Aux |
| | vii). Others (Civil) | | vii). Hydro Turbine Generator set & |

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| | | | Aux viii). Turbo Blower (including Steam Turbine) ix). Material Handling x). Material Management xi). Material Handling & Material Management xii). Others (Mechanical) |
|--|--|--|--|

c) Bidders who have not been evaluated for at least six package months in the last 36 months in the online BHEL system for contractor performance evaluation in BHEL PS Regions, w.e.f July'2010 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 execution of work for a period of not less than 09 months, from the commencement of work of first package

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'.

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

d) In the unlikely event of all bidders shortlisted against Technical and Financial Qualification criteria not meeting the criteria on

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'Assessment of Capacity of Bidders' detailed above, OR leads to a single tender response on applying the criteria of 'Assessment of Capacity of Bidders' or due to non-approval by Customer, then BHEL at its discretion reserves the right to consider the further processing of the Tender based on the **Overall Performance Rating 'R_{BHEL}'** only, starting from the upper band.

- e) 'Under execution' shall mean works in progress as per the following:
- i. up to Boiler Steam Blowing in case of Steam Generator and Auxiliaries
 - ii. upto Synchronization in case of all other works excepting sl no (i) and (iii)
 - iii. Upto execution of at least 90% of anticipated contract value in case of Civil & Structures (unit wise), Enabling works and upto 90% of material unloading (in tonnage) as per the original contract in case of MM Package.

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

- f) Performance evaluation in CL 9 above 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, 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.

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- 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.
- 14.0 Unless specifically mentioned otherwise, bidder's quoted price shall 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 are as given at point (1) above.**
- 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.
- 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.

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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 BHEL reserves the right to decide the successful bidder on the basis of Reverse Auction process. In such case all qualified bidders will be intimated regarding procedure/ modality for Reverse Auction process prior to Reverse Auction and price will be decided as per the rules for Reverse Auction. .

However, if reverse auction process is unsuccessful as defined in the RA rules/procedures, or for whatsoever reason, then the sealed 'PRICE BIDS' will be opened for deciding the successful bidder. BHEL's decision in this regard will be final and binding on bidder.

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 with a validity period of six months initially. In case the consortium is awarded the contract, then the Consortium Agreement between the Prime Bidder and Consortium Partner or partners shall be extended till contractual completion period including extension periods if any applicable.

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.

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- 23.3 Number of partners for a consortium Bidding (or Technical Tie up) shall be as specified in the PQR
- 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
- 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. 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 the prime Bidder withdraws, the whole contract shall be considered cancelled and short closed.
- 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 two similar works with the same consortium partner or partners under direct

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orders of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for similar works, subject to certification from BHEL about the active involvement of the Prime Bidder for satisfactory execution of the works.

23.14 The consortium partner shall submit SD equivalent to 2% 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 1% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value.

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 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.

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

26.0 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/rules in respect of suspension of business dealings', 'Vendor evaluation format', 'Quality, Safety & HSE guidelines', etc may undergo change from time to time and the latest one shall be followed.

For BHARAT HEAVY ELECTRICALS LTD
(AGM Pur)

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Enclosure

01. Annexure-1: Pre Qualifying criteria.
02. Annexure-2: Check List.
03. Annexure-3: Integrity Pact
04. Annexure-4: Important Information.
05. Other Tender documents as per this NIT.

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ANNEXURE - 1

PRE QUALIFYING CRITERIA

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| JOB | Job: Dismantling of Existing ESP Internals & other components, Disposal of the same to scrap yard, Transportation of materials from Customer storage to site of work and carrying out modifications as required, Erection, Testing & commissioning and Application of Insulation/cladding for the work of Renovation & Retrofitting of existing Electrostatic Precipitators & ducts for 3X210 MW sets AT Vindhyachal Super Thermal Power Station- Vindhyachal District: Singrauli, State:MP |
| Tender Specification Number: BHE/PW/PUR/VNSR-ESP PKG-III/1591 | |

| SL N O | PRE QUALIFICATION CRITERIA | Bidders claim in respect of fulfilling the PQR Criteria | |
|-----------------------|---|--|---|
| | | Name and Description of qualifying criteria | Page no of supporting document. Bidder must fill up this column as per applicability. |
| A | Submission of Integrity Pact duly signed (if applicable) (Note: To be submitted by Prime Bidder & Consortium/Technical Tie up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder) | APPLICABLE | |
| B | <u>Technical</u> <u>Bidder should have achieved any one of the following (i.e B.1 or B.2 OR B.3):</u> <u>B.1)</u> The bidder should have executed <u>Erection, Testing & Commissioning (E T & C)</u> of atleast one unit of complete <u>Boiler / ESP</u> of 100MW or higher rating in the last seven years as on latest date of bid submission. OR | APPLICABLE | |

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| | <p><u>B.2)</u> The bidder should have executed <u>Erection, Testing & Commissioning (E T & C)</u> of 2800 MT** of One Unit of <u>ESP (upto Boiler light-up)</u> of any rating in the last seven years as on latest date of bid submission. Note: ** 2800 MT shall necessarily include ESP Structures & ESP Internals viz emitting & collecting electrodes. OR</p> <p><u>B.3)</u> The bidder should have executed <u>Renovation & Modernization (R&M)</u> of atleast one unit of complete <u>Boiler / ESP</u> of 100MW or higher rating in the last seven years as on latest date of bid submission.</p> <p>Note: Job of Annual Overhauling and Capital Overhauling shall not be considered for the experience of R&M job</p> | | |
| C-1 | <p><u>Financial TURNOVER</u> Bidders must have achieved an average annual financial turnover (audited) of Rs 450 Lakhs or more over last three Financial Years (FY) i.e. 2012-2013, 2013-14, 2014-15</p> | APPLICABLE | |
| C-2 | <p><u>NETWORTH</u> (only in case of Companies) 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> Bidder must have earned cash profit in any one of the three Financial Years as applicable in the last three Financial Years defined in 'C-1' above</p> | APPLICABLE | |

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| | based on latest Audited Accounts. | | |
| D | Assessment of Capacity of Bidder to execute the work as per sl no 9 of NIT (if applicable). | APPLICABLE | By BHEL |
| E | Price Bid Opening Note: Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to D. | | BY BHEL |
| F | Approval of Customer (if applicable) Note: Name and Credentials of L-1 " Accepted " bidder shall be sent to customer for their approval. | Not APPLICABLE | |
| G | Technical Tie up criteria (if applicable) | Not applicable | |
| <p><u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u></p> <ol style="list-style-type: none"> Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated against C-1 above along with all annexures 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 i.e total divided by three. 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. C-2:-NETWORTH: Shall be calculated based on the latest Audited Accounts as furnished for C-1 above. Net worth = Paid up share capital + Reserves. (Net worth is required to be evaluated in case of companies) C-3:- PROFIT : shall be NET profit (PAT + Non cash expenditure viz depreciation) earned during any one of the three financial years as in C-1 above 'Additional' Criteria in respect of 'Technical' criteria of PQR (as in 'B' above) for Civil, Electrical, CI, unless otherwise specified : <ol style="list-style-type: none"> Bidder should have executed similar work of any one of the following: <ol style="list-style-type: none"> One (1) work of value not less than Rs XXX _____ OR Two (2) works of not less than Rs YYY _____ OR Three (3) works of not less than Rs ZZZ | | | |

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- (Value XXX, YYY, ZZZ shall be as indicated by BHEL
2. ~~'Similar' work for criteria 5 above means~~
 - a. ~~Civil or Structures or Civil & Structures or Chimney respectively as applicable to the tendered scope in respect of 'CIVIL' Works~~
 - b. ~~Electrical works in respect of 'ELECTRICAL'~~
 - c. ~~CI works in respect of 'CI' Works~~
 - d. ~~Material Handling and/or Management works in respect of 'MM' works~~
 7. Time period for achievement of the 'Technical' criteria of PQR (as in 'B' above) will be the last 7 years ending on the 'latest date' of Bid submission
 8. 'EXECUTED' means the Vendor should have achieved the criteria specified in the Technical criteria of PQR (as in 'B' above) even if the Contract has not been completed or closed
 9. Unless otherwise specified, for the purpose of 'Technical' criteria of PQR (as in 'B' above), the word 'EXECUTED' means:
 1. ~~"BOILER LIGHT UP" in respect of Boiler & Aux and ESP~~
 2. ~~"SYNCHRONISATION" in respect of STG/GTG and 'SPINNING' in case of HTG~~
 3. ~~"STEAM BLOWING COMPLETION" in respect of at least Main Steam Line of Power Cycle Piping~~
 4. ~~"HYDRAULIC TEST" of the system in respect of Structures, Pressure parts/IBR Piping~~
 5. ~~"CHARGING" in respect of power Transformers, Bus ducts, HT/LT switchgears~~
 6. ~~"Completion of RCC Shell and liner (steel or brick as per tendered scope) up to the HEIGHT specified using slip form" in case of RCC Chimney.~~
 7. ~~Achievement of physical Quantities as per respective PQRs in respect of Civil & Structures and Piling Works~~
 8. ~~'Readiness for coal Filling" in respect of Bunker Structure Work.~~
 10. Boiler means HRSG or WHRB or any other types of Steam Generator
 11. ~~Critical/Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass, LP Bypass lines~~
 12. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5TPH 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 in terms of MW shall be considered for evaluation.
 13. ~~In case the experience/POAWO certificate enclosed by bidders do not have separate break up prices for the E&C portion of Electrical and CI Works, (i.e. the certificates enclosed are for composite order for supply and erection of Electrical & CI and other works if any), then value of Erection and Commissioning for the Electrical & CI portion shall be considered as 15% of the supply & erection of Electrical & CI, unless otherwise specifically indicated in the PQR.~~
 14. ~~Scope for capital overhaul of STG shall cover Bearing Inspection work and~~

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| | <p>overhauling of all cylinders of the Turbine unless otherwise specifically indicated in the PQR.</p> <p>15. In case the tendered scope is not a Pulverized Fuel Boiler, experience of Oil/Gas Fired Boilers also can be considered unless otherwise specifically indicated in the PQR.</p> <p>16. The value of work (Experience submitted against PQR B) shall be updated as per the PVC indices for “All India Avg. Consumer Price Index for Industrial Workers” with base month as date of execution (completion of contract/work) and indexed upto two months prior to bid opening month.</p> |
|--|--|

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

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Bidder's Response to BHEL TECHNICAL PQR (WHICHEVER IS APPLICABLE)

| PQR No | Pre-Qualifying Requirement | Credentials (Detailed Work Order, Completion Certificate and TDS Certificates) based on which bidder is claiming PQR | Reference of the documents | Page No |
|--------|---|--|----------------------------|---------|
| B.1 | The bidder should have executed Erection, Testing & Commissioning (E T & C) of atleast one unit of complete Boiler / ESP of 100MW or higher rating in the last seven years as on latest date of bid submission. | | | |
| B.2 | The bidder should have executed <u>Erection, Testing & Commissioning (E T & C)</u> of 2800 MT** of One Unit of <u>ESP (upto Boiler light-up)</u> of any rating in the last seven years as on latest date of bid submission. Note: ** 2800 MT shall necessarily include ESP Structures & ESP Internals viz emitting & collecting electrodes. | | | |
| B.3 | The bidder should have executed Renovation & Modernization (R&M) of atleast one unit of complete Boiler / ESP of 100MW or higher rating in the last seven years as on latest date of bid submission. | | | |

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| Note: Job of Annual Overhauling and Capital Overhauling shall not be considered for the experience of R&M job. | | |
|--|--|--|

NOTE:

BIDDERS MUST CLEARLY INDICATE IN THE TABLE ABOVE, HOW THEY ARE SATISFYING TECHNICAL PQR ALONG WITH THE REFERENCE OF THE SUPPORTING DOCUMENTS AND THE PAGE NUMBER IN WHICH THE REFERRED DOCUMENTS ARE ANNEXED IN THE BID DOCUMENT.

BHEL WILL NOT CONSIDER ANY OTHER DOCUMENT OTHER THAN THOSE SPECIFIED BY THE BIDDERS IN THE TABLE ABOVE FOR EVALUATION OF TECHNICAL PQR.
BIDDER MAY ATTACH SEPERATE SHEET IF NECESSARY

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| | years | | |
| 8 | Copy of PAN Card | Applicable/ Not Applicable | YES/NO |
| 9 | Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed | Applicable/ Not Applicable | YES/NO |
| 10 | Integrity Pact | Applicable | YES/NO |
| 11 | Declaration by Authorized Signatory | Applicable/ Not Applicable | YES/NO |
| 12 | No Deviation Certificate | Applicable/ Not Applicable | YES/NO |
| 13 | Declaration confirming knowledge about Site Conditions | Applicable/ Not Applicable | YES/NO |
| 14 | Declaration for relation in BHEL | Applicable/ Not Applicable | YES/NO |
| 15 | Non-Disclosure Certificate | Applicable/ Not Applicable | YES/NO |
| 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 | ----- |
| 19 | Power of Attorney for Submission of Tender/Signing Contract Agreement | 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 ACCOMPANIED 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

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 of 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 itself 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)

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could obtain an advantage in relation to the tender process or the contract execution.

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

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

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

2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. 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)/ Contractors(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 IPC/PC 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 The Bidders (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.

Section 3 – Disqualification from tender process and execution from future contracts

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

Section 4 – Compensation for Damages

- 4.1 If the Principal has disqualified 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 to 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 his subject, he can be disqualified 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

- a. The Bidder(s)/ Contractor(s) undertake(s) to obtain from his sub-contractors a commitment consistent with this Integrity Pact and report Compliance to the Principal. This commitment shall be taken only from those sub-contractors whose contract value is more than 20% of Bidder's/ Contractor's contract value with the Principal. The Bidder(s)/Contractor(s) shall continue to remain responsible for any default by his Sub-contractor(s).
- b. The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- c. 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/ Sub-contractors

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If the Principal obtains knowledge of conduct of a Bidder, Contractor or Sub-contractor, 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)/ Contractors(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 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)/ Sib-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meeting 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 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
- 8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.

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- 8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC/PC 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.
- 8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

- 9.1 This Pact begins and shall be binding on and from the submission of bid(s) by bidder(s). It expires for the Contractor 12 months after the last payment under the respective contract and for all other Bidders 6 months after the contract has been awarded.
- 9.2 If any claim is made/ lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified as 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 reminder 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 For & On Behalf of the Bidder/ Contractor
(Office Seal) (Office Seal)

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Annexure-4

IMPORTANT INFORMATION

Sealed Tenders shall be submitted at following address to AGM /Purchase BHEL PSWR NAGPUR:

BHEL PSWR, SRIMOHINI COMPLEX, 345 KINGSWAY, NAGPUR 440001, INDIA

All correspondences regarding this tender shall be addressed to AGM / PURCHASE BHEL PSWR at above address. Bidders may also opt to correspond with following BHEL officials regarding this tender through email at following email ids. However please be informed that sealed tenders shall necessarily be submitted in original at above address:

AGM Purchase, Email id: rajeebc@bhelswr.co.in. Ph: +91 – 712 – 3048633

Sr Engineer Purchase, Email: pgv@bhelswr.co.in, Ph: +91 – 712 – 3048713

Sr Engineer Purchase, Email: nktiwari@bhelswr.co.in Ph: +91-712-3048651
Engineer Purchase, Email id: svm@bhelswr.co.in , Ph: +91 – 712 – 3048715

1. **The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site (www.bhel.com ---> Tender Notification -> List of Banned Firms)**
2. **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-of-Business-Dealings-with-Supplier-issued-Sept13_abridged.pdf**
3. **All Statutory Requirements as applicable for this project shall be complied with.**
4. **BHEL Fraud Prevention Policy, "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."**
5. **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

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back-to-back basis on the defaulting contractor without prejudice to any other right spelt anywhere in the tender /contract”

6. Please take note of following Revised Tender Clauses:

- i. Notice Inviting Tender: SI No 9
- ii. General conditions of Contract: Clause 2.12, 2.14, 2.17, Clause No 1.15.13 (New), Clause No 2.8.3, 2.8.4 and 2.8.5
- iii. Special Conditions of Contract: Clause No 4.2.1.7

7. Following Notes are added to Form F- 15 of Volume I D ‘Forms & procedures’

- i. It is only indicative and shall be as per the online format issued by BHEL time to time.
- ii. No request will be entertained after specified date of the current month w.r.t the changes requested in the scores of immediate previous month.

8. PRICE VARIATION CLAUSE

Revision in Price Variation Compensation Clause no. 2.17 of Vol I C GCC:

Clause No. 2.17.9 of Vol IC GCC is revised as below:-

PVC shall be applicable only during the extended period of contract (if any) after the schedule completion date for the portion of work delayed / backlog for the reasons not attributable to Contractor. However total quantum of Price Variation amount payable/recoverable shall be regulated as follows:

- i. For the portion of backlog attributable to the contractor and for the portion of backlog due to force majeure condition during contract period, PVC shall not be paid.
- ii. For the period of force Majeure during extended contract period, PVC will be as per the indices applicable at the beginning of the force majeure period.
- iii. void
- iv. The total amount of PVC shall not exceed 20% of the cumulatively executed contract value during the extended contract period. Executed contract value for this purpose is exclusive of PVC, ORC, Supplementary/Additional Items and Extra works.

Clause No. 2.17.5 of is modified as below:-

Base date shall be the calendar month of the (schedule completion date of the contract). Schedule Completion date shall be the actual start date plus contract period as defined in Chapter VI ‘Vol IA TCC’

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9. Subject Project Consists of R&M works of 8 Units of ESP, which is split into three packages consisting of one package of 2 x 500 MW ESPs and 2 Packages of 3X 210 MW ESPs each. This tender is for the third Package (Pkg III) of 3 x 210 MW ESPs. Earlier tenders of Package I and Package II had the condition that, Bidders who are awarded the job of Pkg I and Pkg II shall not be considered for subject tender. However this modality is now NOT APPLICABLE FOR SUBJECT TENDER.

10. Subject job consist of R&M works of 3 Units of 210 MW ESPs. For ease of operation of the contract, it is decided to adopt following modality for award:

1. All the three units shall be awarded to one agency. However for ease of operation, work orders for all the three units shall be issued seperately and three units shall be considered as separate contracts with separate contract period (18 months each), separate start dates and separate contract value (1/3rd of total contract value).
2. All the records of the contracts viz Measurement of work, progress monitoring, monthly review, performance evaluation etc shall be maintained for all the three units/contracts separately
3. Accordingly various clauses of GCC viz SD, LD, PVC, ORC, Time Extension, retention amount, guarantee period, Quantity Variation, Final Bill etc shall be applicable separately for individual units/Contracts.
4. ORC shall also be applicable for individual Units/Contracts separately. Towards this, Clause No 2.12.3 of GCC is proposed to be amended such that the lower & upper limit of applicable ORC is reduced by 1/3rd considering the award of three contracts. Proposed amended clause is as below:

“

The amount of increase payable per month due to rate revisions is subject to a minimum of Rs 33,000 /- per month and a maximum of Rs 1,66,000 /- per month.

”

11. Acceptance of Bank Guarantee (BG)

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

Clause No. 1.10.3 (V) 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

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Canara Bank
Citi Bank N.A.
Corporation Bank
Deutsche Bank
HDFC Bank Ltd.
The Hongkong and Shanghai Banking Corporation Ltd.
ICICI Bank Ltd.
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 are given in Annexure V of NIT:

- 12.1. Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).
- 12.2. BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids. In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit „online sealed bid” in the Reverse Auction. Non-submission of „online sealed bid” by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.

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- 12.3. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
- 12.4. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit 'online sealed bid' in the Reverse Auction. Non-submission of 'online sealed bid' by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
- 12.5. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
- 12.6. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
- 12.7. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
- 12.8. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
- 12.9. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
- 12.10. Reverse auction will be conducted on scheduled date & time.
- 12.11. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
- 12.12. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
- 12.13. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
- 12.14. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the "Business Rules of

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Reverse Auction", which will be communicated before the Reverse Auction.

- 12.15. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action as per extant BHEL guidelines, shall be initiated by BHEL and the results of the RA scrapped/ aborted.
- 12.16. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.
- 12.17. In case BHEL decides to go for reverse auction, the H1 bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

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**VOLUME – IA
Part I & II
TECHNICAL
CONDITIONS OF
CONTRACT (TCC)**

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – II: SCOPE OF WORKS

| SI no | DESCRIPTION | Chapter |
|--------------------|---|----------------|
| Vol I A | Part-I: Contract specific details | |
| 1 | Project Information | Chapter-I |
| 2 | Scope of works | Chapter-II |
| 3 | Facilities in the scope of Contractor / BHEL (Scope Matrix) | Chapter-III |
| 4 | T&Ps and MMEs to be deployed by Contractor | Chapter-IV |
| 5 | T&Ps and MMEs to be deployed by BHEL on sharing basis | Chapter-V |
| 6 | Time Schedule | Chapter-VI |
| 7 | Terms of Payment | Chapter-VII |
| 8 | Taxes and other Duties | Chapter-VIII |
| 9 | Weight schedule | Chapter-IX |
| 10 | General | Chapter-X |
| 11 | Foundation & Grouting | Chapter-XI |
| 12 | VOID | Chapter-XII |
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| 14 | Progress of work | Chapter-XIV |
| 15 | Welding | Chapter-XV |
| 16 | Testing & Commissioning | Chapter-XVI |
| 17 | Painting | Chapter-XVII |
| 18 | Painting scheme for ESP | Chapter-XVIII |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I : PROJECT INFORMATION

VINDHYACHAL THERMAL POWER PROJECT

1. Project Name : NTPC Vindhyachal Thermal Power Station
2. Project Stage : Stage- I&II
3. No. of Units x Capacity : 6X 210 MW + 2X500 MW
4. Project setting up by : NTPC- Vindhyachal.
5. Location and Approach: (i) Vindhyachal.
From Singrauli Railway Station xxxxxx km
(ii) District: Singrauli
(iii) State : Madhya Pradesh
6. Nearest Railway Station : i) Singrauli
7. Nearest Major Town & Distance: xxxxxxxxxxxx km.
8. Nearest Airport & Distance : xxxxxxxxxxxx km
9. Nearest Highway & Distance : xxxxxxxxxxxx km from NH -xx
10. Temperature: (Dry bulb) : Absolute Max. 46⁰ C
: Absolute Min. 9.7⁰ C
: Average 35⁰ C (Design)
11. Relative Humidity
Maximum : 75 %
Minimum : 54 %
12. Annual Rainfall: 1287.0mm
13. Wind Load : 19-28/hr for 240 days, calm for 125 days.
14. Transport:
 - a) By Rail : Broad Gauge Railway line of Eastern Railway
 - b) Road: District High way
15. Seismic Data: Zone – II as defined in IS: 1893 - 2002

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

SCOPE OF WORKS

PREAMBLE:

NTPC Vindhyachal Super Thermal Power Project (VSTPP) located in Singrauli district of Madhya Pradesh comprising of Stage-I (6 X 210 MW) and Stage-II (2 X 500 MW). The stage-I & stage-II units are supplied & commissioned by BHEL.

The stage-I & stage-II units are provided with BHEL make ESPs to control the particulate emission. The stage-I ESP (of type FAA-7X36-2x45125-2) was originally designed for an outlet emission of 345 mg/Nm³ and stage-II ESP (of type FAA-7X45-2X96130-2) was originally designed for an outlet emission of 50 mg/Nm³. Due to deterioration in the coal quality & change in operating condition of the boiler, the present level of emission is more than the specified norms by pollution control board. Therefore NTPC intends to take up Renovation & Retrofitting of existing ESPs by enhancement of Collection Area/other methods as stipulated so that these units are able to limit the particulate emission level to meet environment norms under various operating conditions/contingencies.

Renovation & Retrofitting for STAGE-I (3x210 MW)

It is proposed that, the existing ESP's casing will be modified to accommodate taller electrodes of latest design after dismantling the existing complete internals, retaining the existing supporting structures, hoppers, casing etc. The modified ESP will have seven field arrangements with extended casing length at the trailing end as shown in the ESP layout sketch.

In addition to the above, it is also proposed to install one number of additional new ESP in parallel for 200 MW units in the space available on the side of existing ESPs and connected with the ducting system.

Existing ducting system will be retained and modified suitably at the ESP inlet and outlet to the extent necessary.

The layout of the proposed system is as per the drawing enclosed with the technical offer.

This tender is for 3x210 MW sets.

Dismantling of Existing ESP Internals & other components, Disposal of the same to scrap yard, Transportation of materials from Customer storage to site of work and carrying out modifications as required, Erection, Testing & commissioning and

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

Application of Insulation/cladding for the work of Renovation & Retrofitting of existing Electrostatic Precipitators & ducts for Package-III consists of **3X210 MW** sets.

List of components required to be dismantled & re use from the dismantled materials is given elsewhere in this contract. Also list of new materials with weight which are to be erected is given in this contract. Given lists are tentative not exhaustive, it may vary. Apart from the given scope of list, additional work may be arisen which will be paid as per quoted rate per MT.

SCOPE OF WORK FOR RENOVATION & RETROFITTING FOR 210 MW

AA. The following activities are based on technical offer of BAP/Ranipet and tender specification.

1. Dismantling of existing ESP's internals and roof as below:

- collecting electrode, emitting electrode, emitting frame, collecting system, rapping mechanism,
- Inlet / outlet funnel, roof beam, roof panel,
- ESP inlet duct, ESP outlet duct to the extent required,
- Roof mounted electrical items like TR sets, rectifier handling, insulator housing, disconnecting switch, gear motor, interlock, Cables etc.
- Insulation & cladding for duct from APH outlet duct to ID fan inlet duct including ESP & hoppers.
- All Expansion joint from APH outlet duct to ID fan inlet duct to be replaced with new metallic type expansion joint.
- ESP control room items - EC panels, interconnecting cables from ACP to LT board.

The following items in existing ESP are to be retained for re-use.

- ESP casing, Hopper, ESP supporting structure, Inlet duct & supporting structure
- outlet duct & supporting structure, Opacity monitor
- Cable trays and supports
- ACP
- LTMSB

The following items in existing ESP are to be relocated.

- Gate at ESP outlet duct
- Gate at ESP outlet common duct

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

2. Transportation of dismantled items to customer scrap yard.
3. Erection and commissioning of proposed retrofitting is as per the drawing enclosed with the technical offer.

Renovation as per the ESP scope of supply and the salient features are as under.

- Increasing the existing casing height from 12.5 m to 15 m.
- Erection of 12.5 m tall collecting electrode system, emitting electrode system, rapping system and other internals etc.,
- Erection of one number of parallel ESP on one side of existing ESP.
- Erection of funnel, ESP inlet/outlet duct.
- Erection of duct supporting structures.
- Erection of TR sets and control cubicles
- Repair/ strengthening the existing ESP supporting structures.
- Laying of cables & terminations along with cable trays as required.
- Electrical and C & I work as mentioned in the scope for Electrical works.
- Testing & commissioning of ESP fields.
- Erection and commissioning of guillotine gate with actuator-2 nos. per boiler in the parallel ESP.
- Arranging the air in leakage test materials, test instruments and conducting the air in leakage test for all 6 ESP passes.

SPECIAL NOTES:

1. Fuel for operation of the BHEL Cranes to be provided by Bidder.
3. Erection of Dummy plates for bypassing the duct at ESP outlet side of 210 MW Units is in bidder scope of work.
4. Bidder to erect temporary bypass duct which are required for operation of 210 MW Boilers during retrofitting work. After completion of retrofitting work same shall be removed & permanent by pass duct to be erected from ESP outlet to re located gate
- 5. Bidders are strongly advised to visit the site to acquaint themselves with the working conditions and the project requirements for execution of the job.**

BB: Duct modifications to suit the new and renovated ESP:

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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The existing ducts to be dismantled and modified to suit the new ESP and as well as modified /renovated ESP. The duct materials will be supplied by BHEL free of cost as erection materials. Necessary works like fabrications, preassembly, erection, testing and commissioning to be carried out by bidder, if required. The old and removed duct materials have to be re used for certain modifications. The work involves re location of duct expansion joints, gates/dampers as required for satisfactory completion of work.

CC: Bypass duct (Outlet side)

To facilitate the customer to run unit as per load requirement, during shutdown of unit ,in each pass by-pass duct is proposed to be erected at ESP outlet to facilitate Retrofitting of passes one by one without taking further shutdown for isolation of passes. The work involves pre assembly, erection including temporary and permanent supports interconnection to existing ducts at ESP inlet/ outlet including relocation of isolation gates ,expansion joints etc. The work also includes application of insulation and all cladding/sheeting. Prospective bidders are requested to visit site and assess the quantum of work to be completed during shutdown of the unit.

DD: R&M of ESP

The ESP height will be increased from 12.5 m to 15 m height by extending the wall & Casing columns height with proper structure. After increasing the height Regular ESP erection with all required items like LR & TR Beams, support insulators frames inner and outer roofs, disconnection switches etc with new frames, new electrodes will be carried out as a new ESP.

Once the ESP erection works are completed, the ESP will be cold commissioned. After cold commissioning, the ESP will be charged with flue gasses by opening the gates. The dummy plates if any erected for safe isolation will be removed and all finally ESPs will be in service

During R&M of ESP, the tests like air tightness test, GD test etc as required for satisfactory performance is to be conducted by renderer.

EE: Miscellaneous works:

As the work is to be carried out in running plant with confined space, miscellaneous works like shifting/ rerouting of ducts, pipes, cable trays with all type of cables of nearby equipment will have to be carried out during shutdown period for facilitating the retrofit

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

work. Such works have to be carried out under supervisions and guidance of customer and BHEL.

1.1 T&P, cranes, erection tools etc

All the tools tackles, Cranes (except those being provided by BHEL), Derricks arrangements (Structural material for fabrication of Derik will be provided by BHEL on returnable basis) required for satisfactory and safe execution of work to be arranged by contractor at his cost. No T&P will be provided by BHEL except open space for their office. The quoted rate includes entire completion of work including arrangements for labor colony forms their workers stay & their transportation.

Due to confined space, there may be most of the areas being non-approachable by crane. Agency has to use improvised methods for dismantling and assembly / erection of various equipment components etc. to complete the erection of new ESP & retrofitting work. These methods may include tying of ropes through existing structures /equipment such as chimney, conveyor structure and other available structures etc. At some locations, such structures are not available and crane also cannot approach .In such cases, derrick arrangement to be made for dismantling and erection. Bidders are strongly advised to visit the site along with BHEL officials to assess the possibility of using alternate arrangements apart from crane. No separate payment shall be made for any such arrangements used during the execution of the contract. All safety precautions have to be taken for such alternate arrangements and no damage should be caused to the existing equipment, structure, customer property etc.

All the above activities included in the quoted rate. No separate amount will be paid for any work. The ESP R&M work completion means completion of work in all respects and takeover by customer. Any miscellaneous works arises for satisfactorily completion of work to be carried out by bidder without any extra amount.

1.1.1 Receipt of materials / component to be erected by the contractor, loading and transportation from the storage yard to the project site, stacking, storage and preservation.

1.1.2 Preassembly, Erection, Testing, Commissioning, Trial operation and reliability operation of equipment.

1.1.3 Final painting including supply of paints.

1.2 INSULATION & CLADDING:

100 % Insulation & cladding from APH outlet duct to ID fan inlet duct to be replaced including existing ESP & its hoppers

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: SCOPE OF WORKS

1.3 PAINTING

The scope of work shall include supply and application of final painting for all the components.

1.4 OPEN SPACE:

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

1.5 ELECTRICITY

1.5.1 The contractor shall be provided with free supply of Electricity for the purpose of execution of work at single point only at work site. For further distribution contractor shall make his own arrangements. Electricity for all other services if required will be provided on **chargeable basis** as per NTPC norms.

a) Consumption charges as per NTPC norms

b) Any dispute regarding consumption, BHEL engineer's decision is final.

1.5.2 Any duty, deposit involved in getting the Electricity shall be borne by the bidder. As regards contractor's office shed also all such expenditure shall be borne by the contractor.

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

BHEL is not responsible for any loss or damage to the contractor's equipment as a result of variations in voltage / frequency or interruptions in power supply.

PENALTY / LIQUIDATE DAMAGE:

Penalty / Liquidate Damage shall be applicable for delay in completion of works as per BHEL RM recommendations.

Shutdown period will be 45 Days for 210MW shall be provided by NTPC for facilitating duct modification in order to isolate one pass at a time and continue operation of the ESP with remaining passes. The schedule of shut down for each unit shall be intimated by NTPC in due course.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – II: SCOPE OF WORKS

Note:

FOR FURTHER DETAIL SCOPE OF WORKS REFER RELEVANT CHAPTERS IN THIS BOOK

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

**FACILITIES IN THE SCOPE OF CONTRACTOR / BHEL
(SCOPE MATRIX)**

| Sl.No | Description | Scope to be taken care by | | Remarks |
|------------------|--|---------------------------|--------|--|
| | | BHEL | Bidder | |
| 1.3.1.1.0 | ESTABLISHMENT | | | |
| 1.3.1.1.1 | FOR CONSTRUCTION PURPOSE: | | | |
| A | Open space for office | Yes | | |
| B | Open space for storage | Yes | | |
| 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 | Fire fighting equipments like buckets, extinguishers etc | | Yes | |
| G | Fencing of storage area, office, canteen etc of the bidder | | Yes | |
| 1.3.1.1.2 | FOR LIVING PURPOSES OF THE BIDDER | | | |
| A | Open space | | Yes | |
| B | Living accommodation | | Yes | |
| 1.3.1.2.0 | ELECTRICITY | | | |
| 1.3.1.2.1 | Electricity For construction purposes (to be specified whether chargeable or free) | | | |
| 1.3.1.2.1.1 | Single point source | Yes | | Free for construction purpose. Chargeable for labor colony etc |

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

| SI.No | Description | Scope to be taken care by | | Remarks |
|------------------|--|---------------------------|--------|---------|
| | | BHEL | Bidder | |
| | PART I | | | |
| 1.3.1.2.1.2 | Further distribution for the work to be done which include supply of materials and execution | | Yes | |
| 1.3.1.2.2 | Electricity for the office, stores, canteen etc of the bidder which include: | | Yes | |
| 1.3.1.2.2.1 | Distribution from single point including supply of materials and service | | Yes | |
| 1.3.1.2.2.2 | Supply, installation and connection of material of energy meter including operation and maintenance | | Yes | |
| 1.3.1.2.2.3 | Duties and deposits including statutory clearances for the above | | Yes | |
| 1.3.1.2.2.4 | Living facilities for office use including charges | | Yes | |
| 1.3.1.2.2.5 | Demobilization of the facilities after completion of works | | Yes | |
| 1.3.1.2.3 | Electricity for living accommodation of the bidder's staff, engineers, supervisors etc on the above lines.(in case BHEL provides this facility, the scope should be given without ambiguity) | | Yes | |
| 1.3.1.3.0 | WATER SUPPLY | | | |
| 1.3.1.3.1 | For construction purposes: | | | |
| 1.3.1.3.1.1 | Making the water available at single point | YES | | |
| 1.3.1.3.1.2 | Further distribution as per the requirement of work including supply of materials and execution | | Yes | |
| 1.3.1.3.2 | Water supply for bidder's office, stores, canteen etc | | | |

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

| SI.No | Description | Scope to be taken care by | | Remarks |
|------------------|--|---------------------------|--------|---------|
| | | BHEL | Bidder | |
| | PART I | | | |
| 1.3.1.3.2.1 | Making the water available at single point | | Yes | |
| 1.3.1.3.2.2 | Further distribution as per the requirement of work including supply of materials and execution | | Yes | |
| 1.3.1.4.0 | LIGHTING | | | |
| 1.3.1.4.1 | For construction work (supply of all the necessary materials) At office storage area At the preassembly area At the construction site /area | | Yes | |
| 1.3.1.4.2 | For construction work (Execution of the lighting work / arrangements) At office storage area At the preassembly area At the construction site /area | | Yes | |
| 1.3.1.5.0 | COMMUNICATION FACILITIES for site operations of the bidder | - | | |
| 1.3.1.5.1 | Telephone, Fax, internet, intranet, email etc | | Yes | |
| 1.3.1.6.0 | COMPRESSED AIR SUPPLY | | | |
| 1.3.1.6.1 | Supply of Compressor and all other equipments required for compressor & compressed air system including pipes, valves, storage systems etc | Yes | | |
| 1.3.1.6.2 | Installation of above system and operation & maintenance of the same | - | | |
| 1.3.1.6.3 | Supply of the all the consumables for the above system during the contract period | | | |

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

| SI.No | Description | Scope to be taken care by | | Remarks |
|------------------|--|---------------------------|--------|--------------------------------------|
| | | BHEL | Bidder | |
| | PART II | | | |
| | ERECTION FACILITIES | | | |
| 1.3.2.1.0 | Engineering works for construction | | | |
| 1.3.2.1.1 | Providing the erection drawings for all the equipments covered under this scope | Yes | | |
| 1.3.2.1.2 | Drawings for construction methods | | Yes | In consultation with BHEL |
| 1.3.2.1.3 | As-built drawings – wherever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes | Yes | Yes | ” |
| 1.3.2.1.4 | Shipping lists etc for reference and planning the activities | Yes | | ” |
| 1.3.2.1.5 | Preparation of site erection schedules and other input requirements | | Yes | ” |
| 1.3.2.1.6 | Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments | Yes | Yes | |
| 1.3.2.1.7 | Weekly erection schedules based on SI No 2.1.5 | | Yes | |
| 1.3.2.1.8 | Daily erection / work plan based on SI No 2.1.7 | | Yes | For daily monitoring meeting at site |
| 1.3.2.1.9 | Periodic visit of the 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 | | Yes | |

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

| SI.No | Description | Scope to be taken care by | | Remarks |
|------------|--|---------------------------|--------|----------------|
| | | BHEL | Bidder | |
| | PART II | | | |
| | of the bidder should be done once in every two months. | | | |
| 1.3.2.1.10 | Preparation of preassembly bay | | Yes | |
| 1.3.2.1.11 | Laying of racks for gantry crane if provided by BHEL or brought by the contractor/bidder himself | | | Not applicable |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps AND MME TO BE DEPLOYED BY CONTRACTOR

The following minimum major Tools & Plants shall be deployed by the contractor:

| Sl. No | DESCRIPTION OF EQUIPMENT | CAPACITY | MINIMUM QUANTITY | REMARKS |
|---------------|---|-------------------------------|-------------------------|--|
| 01 | TYRE MOUNTED TELESCOPIC CRANE ALONG WITH LUFFING JIB/Tower Crane | 150 T | 01 | TO BE DEPLOYED FROM BEGINNING FOR START OF ERECTION TILL COMPLETION |
| 02 | PICK AND CARRY CRANE | 12/14 T | 02 | TO BE DEPLOYED FROM BEGINNING FOR START OF ERECTION TILL COMPLETION |
| 03 | SELF DRILLING CUM TAPPING MACHINE FOR SCREWS OF FLOOR GRILL & ROOF SHEETING | AS REQUIRED | 02 | TO BE DEPLOYED AT APPROPRIATE STAGE OF WORK AS PER INSTRUCTION OF BHEL ENGINEER |
| 04 | 3 ph DISTRIBUTION BOARD WITH COMPLETE SET UP FOR DRAWING CONSTRUCTION POWER, FITTED WITH ENERGY METER | AS Required | As required | AS REQUIRED AND AS PER INSTRUCTION OF BHEL ENGINEER |
| 05 | WELDING GENERATOR (ELECTRIC & DIESEL) | 300 AMPS | AS REQUIRED | TO BE DEPLOYED PROGRESSIVELY AS PER INSTRUCTION OF BHEL ENGINEER |
| 06 | ELECTRIC WINCH | 1 TON / 2 TON / 3 Tons / 5TON | 08 (TOTAL) | TO BE DEPLOYED PROGRESSIVELY AS PER INSTRUCTION OF BHEL ENGINEER |
| 07 | ELECTRIC CABLE FOR DRAWAL & DISTRIBUTION OF CONSTRUCTION POWER | AS REQUIRED | AS REQUIRED | TO BE DEPLOYED FROM BEGINNING OF START OF MATERIAL HANDLING TILL COMPLETION |
| 08 | BAKING OVEN AND HOLDING OVEN WITH THERMOSTAT AND TEMPERATURE GAUGE FOR BAKING COATED WELDING ELECTRODES | AS REQUIRED | 01 SET EACH | TO BE DEPLOYED AT APPROPRIATE STAGE OF WORK AS PER INSTRUCTION OF BHEL ENGINEER |
| 09 | PORTABLE OVEN FOR COATED WELDING ELECTRODES | AS REQUIRED | 05 SET | TO BE DEPLOYED PROGRESSIVELY AS PER INSTRUCTION OF BHEL ENGINEER |
| 10 | TRAILER WITH PRIME MOVER | ADEQUATE CAPACITY | AS REQUIRED | WHILE FURNISHING THE DEPLOYMENT PLANS FOR THESE ITEMS, THE NEED FOR TRANSPORT OF MATERIAL RECD ON GODOWN DELIVERY BASIS IS TO BE KEPT IN VIEW. VEHICLES DEPLOYED SHOULD HAVE VALID STATUTORY DOCUMENTS AT ALL TIMES |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps AND MME TO BE DEPLOYED BY CONTRACTOR

| | | | | |
|----|---|-------------|-------------|-------------------|
| 11 | TRUCK | 9 MT | 1 NO | |
| 12 | SLINGS, 'D'-SHACKLES, HYDRAULIC JACKS, ETC. | AS REQUIRED | AS REQUIRED | WITH TEST REPORTS |

Following Testing/Commissioning Equipments are required for Electrical systems.

1. SILICON OIL FILTERING MACHINE FOR ESP RECTIFIER TRANSFORMERS (Rated@95KV)
2. TRANSFORMER OIL PURIFICATION PLANT WITH VACUUM PUMP FOR EVACUATION OF TRANSFORMER ALONGWITH ACCESSORIES & HOSES [For 2 MVA Service Transformers]
3. CONTAINER FOR TRANSFORMER OIL SAMPLING
4. PRIMARY INJECTION KIT
5. SECONDARY INJECTION KIT WITH INTEGRAL TIMER FOR RELAY TESTING
6. - 3 PHASE VARIAC
7. SINGLE PHASE VARIAC
8. TRANSFORMER TURNS RATIO TEST KIT
9. TRANSFORMER OIL BDV TEST KIT 0-100 KV WITH 2.5MM AIR GAP.
10. OIL SPECIFIC GRAVITY AND PPM MEASURING INSTRUMENT
11. SOLDERING IRON "SOLDRON" MAKE 25 WATT
12. MULTIMETRES (4 Nos.) - DIGITAL 4 1/2 DIGIT OF REPUTED MAKE; ANALOG MOTWANE MAKE
13. STANDARD MILLI AMPS/MILLIVOLTS SOURCE MAKE RANGE 0 TO 60 mA AND 0 TO 100 Mv
14. INSULATION TESTER HAND OPERATED 250V/500V/1000 V RATED MAINS/BATTERY OPERATED
15. PHASE SEQUENCE INDICATOR
16. TONG TESTER AC 5/10 AMP RANGE REPUTED MAKE
17. INDUSTRIAL TYPE VACUUM CLEANER
18. MICRO OHM METER
19. TORQUE WRENCH (12-60Nm)
20. TACHOMETER
21. NON – CONTACT TYPE DIGITAL THERMOMETER
22. RELAY TESTING KIT
23. FERRULE PRINTING MACHINE

The above list is tentative. The contractor has to provide required type and capacity of cranes/lifting tools for satisfactory completion of work.

NOTE:

1. As there are bound to be interruptions in regular power supply, power cut/ load shedding in any construction site due to inherent power shortage in state; it shall be the responsibility of the contractor to have minimum numbers of diesel operated welding generator sets to get urgent and important work to go on without interruptions. The consumables required to operate the generators are

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: T&Ps AND MME TO BE DEPLOYED BY CONTRACTOR

to be provided by the bidders at their cost. No separate payment shall be made for this contingency.

2. Depending upon the nature of work and availability of facilities locally, contractor may have to arrange for a temporary workshop for facilitating uninterrupted progress of work
3. All the T&Ps required for this scope of work, except the T&Ps provided by BHEL are to be arranged by the contractor within the quoted rates.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – V: T&Ps AND MME TO BE DEPLOYED BY BHEL ON
SHARING BASIS

T&Ps AND MMEs TO BE DEPLOYED BY BHEL ON SHARING BASIS

List of T&P's to be made available by BHEL to contractor free of hire charges on sharable basis.

1. Huck bolting machine with required Gun sets & hoses.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – VI: TIME SCHEDULE

TIME SCHEDULE

1.6.1 TIME SCHEDULE

1.6.1.1 The entire work of Erection, Testing and Commissioning of Electrostatic Precipitator and ducts including Supply and Application of Final Painting for one unit of 210 MW set at NTPC-Vindhyachal Super Thermal Power Station-Vindhyachal, Madhya Pradesh as detailed in the Tender Specification shall be completed within **18 (Eighteen)** months EACH UNIT from the date of commencement of work at site (DATE OF COMMENCEMENT OF INDIVIDUAL UNIT SHALL BE SEPERATELY RECOGNISED).

1.6.1.2 During the total period of contract, the contractor has to carry out the activities in a phased manner as required by BHEL and the program of milestone events.

1.6.1.3 The erection work shall be commenced on the mutually agreed date between the bidder and BHEL engineer and shall be deemed as completed in all respect only when the unit is in operation. The decision of BHEL in this regard shall be final and binding of the contractor. The scope of work under this contract is deemed to be completed only when so certified by the site Engineer.

1.6.2 COMMENCEMENT OF CONTRACT PERIOD

The date of commencement of contract period shall be the mutually agreed date between the bidder and BHEL engineer to start the work. In case of discrepancy the decision of BHEL engineer is final.

1.6.3 MOBILISATION FOR ERECTION, TESTING, ASSISTANCE FOR COMMISSIONING ETC.

The activities for erection, testing etc shall be started as per directions of BHEL Engineer. The contractor has to augment his resources in such a manner that following major milestones of erection & commission are achieved on specified schedules:

Expected Work start for Package-III: 01-March 2016

1.6.4 In order to meet above schedule in general, and any other intermediate targets set, to meet customer / project schedule requirements, contractor shall arrange & augment all necessary resources from time to time on the instructions of BHEL.

1.6.5 In case any requirement is there to compress the schedule of activities to achieve project completion, then the additional expenses if any incurred will be

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – VI: TIME SCHEDULE

discussed mutually and settled. BHEL decision in this regard is final and the issue is not abatable.

1.6.6 CONTRACT PERIOD

The contract period for completion of entire work of One Unit shall be **18 (Eighteen)** months from the “COMMENCEMENT OF CONTRACT PERIOD” as specified earlier.

1.6.7 GUARANTEE PERIOD FOR EACH UNIT

The guarantee period of six months shall commence from the date of handing over of the Unit to Customer or twelve months from the date of first synchronization of the set, whichever is earlier (Provided all erection, testing, and commissioning works are completed in all respects).

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – VII: TERMS OF PAYMENT

TERMS OF PAYMENT

1.7 Terms of payment :

Progressive Payment against monthly running bills will be made on Pro-rata basis and payments against stage / milestones events shall be as per the following table.

AA: DISMANTLING WORK OF ESP:

| CI No: | Description | ESP Rate Schedule |
|---------|---|-------------------|
| | PRO RATA PAYMENTS (95%) | % |
| 1.7.1.1 | Completion of Dismantling work for each pass @15% | 60 |
| 1.7.1.2 | Completion of Duct Modification in shut down | 20 |
| 1.7.1.3 | Satisfactory completion of Dismantling work in all respects | 15 |
| | STAGE/MILESTONE PAYMENTS | |
| 1.7.2.6 | Area cleaning, temporary structures cutting/removal and return of scrap | 1 |
| 1.7.2.7 | Punch List points/pending points liquidation | 1 |
| 1.7.2.8 | Material Reconciliation | 2 |
| 1.7.2.9 | Completion of Contractual Obligation | 1 |
| | TOTAL FOR STAGE/MILESTONE PAYMENTS | 5 |
| | TOTAL I + II | 100 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – VII: TERMS OF PAYMENT

BB: ERECTION / RETROFITTING WORK OF ESP:

| CI No: | Description | ESP Rate Schedule |
|---------|---|-------------------|
| | PRO RATA PAYMENTS (85%) | % |
| 1.7.1.1 | ON PRE-ASSEMBLY WHEREVER APPLICABLE (IF NOT APPLICABLE, THIS PORTION SHALL BE CLUBBED WITH PLACEMENT IN POSITION) | 15 |
| 1.7.1.2 | PLACEMENT IN POSITION | 20 |
| 1.7.1.3 | ALIGNMENT | 15 |
| 1.7.1.4 | WELDING/BOLTING/FIXING | 20 |
| 1.7.1.5 | HANGERS & SUPPORTS ETC WHEREVER NECESSARY AS PER DRG | -- |
| 1.7.1.6 | COMPLETION OF HOPPERS ALONG WITH ALL DOORS, HEATING ELEMENTS, POKING DOORS, ETC | 5 |
| 1.7.1.7 | COMPLETION OF INNER, OUTER ROOF INSULATOR HOUSING, RECTIFIER TRANSFORMERS, PENT HOUSE MONO RAILS, HOISTS ETC | 5 |
| 1.7.1.8 | ERECTION OF EMITTING AND COLLECTING RAPPING SYSTEM WITH ALL DRIVES | 5 |
| | TOTAL FOR PRO RATA PAYMENTS (TOTAL 85%) | 85 |
| | STAGE/MILESTONE PAYMENTS | |
| 1.7.2.1 | AIR & GAS TIGHTNESS TEST | 3 |
| 1.7.2.2 | GAS DISTRIBUTION TEST | 2 |
| 1.7.2.3 | CHARGING OF ESP FIELDS | 4 |
| 1.7.2.4 | PG Test completion | 1 |
| 1.7.2.5 | Trial Operation of Unit | 1 |
| 1.7.2.6 | Area cleaning, temporary structures cutting/removal and return of scrap | 1 |
| 1.7.2.7 | Punch List points/pending points liquidation | 1 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – VII: TERMS OF PAYMENT

| | | |
|---------|---|------------|
| 1.7.2.8 | Material Reconciliation | 1 |
| 1.7.2.9 | Completion of Contractual Obligation | 1 |
| | TOTAL FOR STAGE/MILESTONE PAYMENTS (15%) | 15 |
| | TOTAL I + II | 100 |

CC: APPLICATION OF INSULATION WORK:

| CI No: | Description | ESP Rate Schedule |
|---------|---|-------------------|
| | PRO RATA PAYMENTS (95%) | % |
| 1.7.1.1 | On application of insulation materials | 90 |
| | STAGE/MILESTONE PAYMENTS | |
| 1.7.2.2 | PG Test completion | 1 |
| 1.7.2.3 | Trial Operation of Unit | 1 |
| 1.7.2.4 | Area cleaning, temporary structures cutting/removal and return of scrap | 3 |
| 1.7.2.5 | Punch List points/pending points liquidation | 2 |
| 1.7.2.6 | Material Reconciliation | 2 |
| 1.7.2.7 | Completion of Contractual Obligation | 1 |
| | TOTAL FOR STAGE/MILESTONE PAYMENTS | 10 |
| | TOTAL I + II | 100 |

DD: RETROFITTING FOR ELECTRICAL ITEMS

| CI No: | Description | ESP Rate Schedule |
|--------|-------------|-------------------|
|--------|-------------|-------------------|

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – VII: TERMS OF PAYMENT

| PRO RATA PAYMENTS (95%) | | % |
|---|---|------------|
| 1.7.1.1 | Completion of Dismantling work for each pass @ 5% | 20 |
| 1.7.1.2 | Satisfactory completion of Dismantling work in all respects. | 5 |
| 1.7.1.2 | Placement in Position for each pass @ 12% | 60 |
| STAGE/MILESTONE PAYMENTS | | |
| 1.7.2.1 | AIR & GAS TIGHTNESS TEST | 3 |
| 1.7.2.2 | GAS DISTRIBUTION TEST | 2 |
| 1.7.2.3 | CHARGING OF ESP FIELDS | 4 |
| 1.7.2.4 | PG Test completion | 1 |
| 1.7.2.5 | Trial Operation of Unit | 1 |
| 1.7.2.6 | Area cleaning, temporary structures cutting/removal and return of scrap | 1 |
| 1.7.2.7 | Punch List points/pending points liquidation | 1 |
| 1.7.2.8 | Material Reconciliation | 1 |
| 1.7.2.9 | Completion of Contractual Obligation | 1 |
| TOTAL FOR STAGE/MILESTONE PAYMENTS | | 15 |
| TOTAL I + II | | 100 |

Note:

1. In case any requirement is there to compress the schedule of activities to achieve project completion, then the additional expenses if any incurred will be discussed mutually and settled. BHEL decision in this regard is final and the issue is not arbitral.
2. Recovery of Retention amount as per Cl. 2.22 of GCC.
3. RA bill payments as per Chapter-X of SCC
4. Payment for the first running bill will be released only on production of the following.
 - i. PF Regn. No.
 - ii. Labour License No.
 - iii. Workmen Insurance Policy No.
 - iv. Unqualified Acceptance for Detailed L.O.I.
 - v. Initial 50% Security Deposit.

TAXES AND OTHER DUTIES

8.0 TAXES, DUTIES, LEVIES (Consolidated Rev 06 dated 28/12/2015)

8.1. For All types of works excepting works covered under sl no 8.2

8.1.1

The contractor shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tools, royalty, commissions or other charges which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit.

However, provisions regarding Service Tax, Swachh Bharat Cess and Value Added Tax (VAT) on output services and goods shall be as per following clauses.

8.1.2 Service Tax & Swachh Bharat Cess on Services:

Contractor's price/rates shall be exclusive of Service Tax and Swachh Bharat Cess on Services. In case, it becomes mandatory for the contractor under provisions of relevant act/law to collect the Service Tax & Swachh Bharat Cess from BHEL and pay the same to the concerned tax authorities, such applicable amount will be paid by BHEL at the prevailing Service Tax Rate presently Service Tax 14% and Swachh Bharat Cess 0.5% on the admitted Service value.

Contractor shall submit to BHEL documentary evidence of Service Tax registration certificate specifying name of services covered under this contract. Contractor shall submit serially numbered Service Tax and Cess Invoice, signed by him or a person authorized by him in respect of taxable service provided, and shall contain the following, namely,

- 1. The name, address and the registration number of the contractor,**
- 2. The name and address of the party receiving taxable service,**
- 3. Description and value of taxable service provided and,**
- 4. The service tax and Swachh Bharat Cess payable thereon.**

All the Four conditions shall be fulfilled in the invoice before release of service tax and Swachh Bharat Cess payment.

Wherever, more than one route/option are available for discharge of service tax and Swachh Bharat Cess liability under a particular service, (e.g. "works contract Service"), contractor shall obtain prior written consent from BHEL site before billing the amount towards Service Tax.

8.1.3 VAT (Sales Tax /WCT)

As regards Value Added Tax (VAT)/CST on transfer of property in goods involved in Works Contract (previously known as Works Contract Tax) applicable as per

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VIII: TAXES AND OTHER DUTIES

local laws, the price quoted by the contractor shall be inclusive of the same and in no case input or output VAT/CST will be reimbursed extra.

In any case the Contractor shall register himself with the respective Sales Tax authorities of the state and submit proof of such registration to BHEL along with the first RA bill. Contractor will submit all the details of VAT/CST paid for the contract in the prescribed format of the respective state VAT laws. Also, the contractor will issue the tax Invoices to BHEL as per the Tax laws of respective state on monthly basis. Contractor shall also be required to furnish to BHEL necessary proof of VAT remittance on monthly basis.

Deduction of tax at source shall be made as per the provisions of law and is to be construed as an advance tax paid by the contractor and no reimbursement thereof will be made.

Further, if BHEL, at the instance of customer or otherwise adopts the specific route for discharging output VAT liability itself, benefit of the reduction in liability of the contractor will be passed on to BHEL.

In case, BHEL is forced to pay any VAT liability on behalf of contractor, the same will be recovered from contractor's bill or otherwise as deemed fit

8.2 'Enabling Works'

~~The contractor shall pay all (save the specific exclusions as enumerated in this contract) taxes, fees, license charges, deposits, duties, tools, royalty, commissions or other charges which may be levied on the input goods & services consumed and output goods & services delivered in course of his operations in executing the contract. In case BHEL is forced to pay any of such taxes, BHEL shall have the right to recover the same from his bills or otherwise as deemed fit. (i.e. rates quoted by bidder shall be inclusive of Service Tax, VAT/WCT and all other taxes and duties including new levies/taxes/duty if any)~~

~~However, Since the proposed work is in the nature of 'Works Contract service' as per Service tax law, Hence, For non corporate contractors being Individual, HUF, Proprietary Firm, Partnership Firm or Association of Persons (AOP), BHEL shall recover the applicable Service Tax under reverse charge mechanism from the contractor and remit the same with the Government as per the provisions of Law. Necessary advice/confirmation of remittance shall be issued to the contractor. The contractor shall not be eligible for any refund/reimbursement of such service tax from BHEL. It shall be the responsibility of the contractor to submit proper invoice giving all the requisite details as per Service Tax Law for the determination of the service tax liability of BHEL under reverse charge mechanism. BHEL reserves the right to determine such liability based on the invoice submitted by the contractor or otherwise independently and remittance of the same with the Government.~~

8.3 New Taxes/Levies - For All types of works excepting works covered under sl no 8.2

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In case the Government imposes any new levy/tax on the output service/ goods/work after award of the contract, the same shall be reimbursed by BHEL at actual.

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

No reimbursement/recovery on account of increase/reduction in the rate of taxes, levies, duties etc. on input goods/services/work shall be made. Such impact shall be taken care of by the Price Variation/Adjustment Clause (PVC) if any. In case PVC is not applicable for the contract, Bidder has to make his own assessment of the impact of future variation if any, in rates of taxes/duties/ levies etc. in his price bid.

8.4 BOCW Cess - For All types of works excepting works covered under sl no 8.2

The quoted rates shall be exclusive of the BOCW Cess which, if applicable, shall be paid extra by BHEL against Documentary evidence. However, the applicability of the BOCW Cess shall be got confirmed from BHEL in writing, before remitting such Cess/tax.

8.5 GST: For All types of works excepting works covered under sl no 8.2

As and when GST becomes applicable to this contract, the net differential (negative or positive) financial liability of the bidder to the Authorities (as compared to such liability prior to applicability of GST), if any, shall be to the account of BHEL. For this purpose, all available options under the GST shall be explored, and the decision of BHEL in this regard shall be final and binding on the bidder.

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WEIGHT SCHEDULE

1.9.0 WEIGHT SCHEDULE

PGMA List of Materials as Supplied by BHEL Ranipet (Tentative PGMA List File Attached)

1.9.1. TOTAL WT. OF ESP MATERIALS TO BE ERECTED: **8102 MT**

| ESP R&M OF VINDHYACHAL STPP, NTPC | | | |
|--|--------------|-------|-------------|
| DETAILS OF TOTAL WT.(in M Tons) | | | |
| Wt. details | 3 X 210 MW | | |
| | Wt./ ESP. | Units | Wt |
| MECHANICAL WT. | | | |
| Parallel ESP | 882 | 3 | 2646 |
| ESP | 1580 | 3 | 4740 |
| Ducts & Dampers | 202 | 3 | 606 |
| Sub-Total | | (A) | 7992 |
| Total Wt. | | 7992 | |
| Reduction (-) | | 270 | |
| I. TOTAL MECH WT. | | 7722 | |
| TOTAL WT. FOR ERECTION (I + II) | | | 7722 |
| LINING & INSULATION (MT) | | | 381 |

NOTE FOR WEIGHT SCHEDULE:

- The weights given are only approximate and for general guidance and they are subject to variation as per site requirement for dismantling & design consideration for erection.
- The information furnished is only a description regarding the items to be erected by the contractor. BHEL reserves the right to add or exclude any components / items / system according to the site requirements / customer requirements to complete the systems in all respects.

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3. Any other systems / Components which are integrates ESP & auxiliaries, supplied by BHEL manufacturing units are also to be erected and commissioned by the contractor within the quoted / accepted tonnage rate / lump sum value.
4. Insulation: Removal of existing insulation from Complete ESP and ducts limited to scope of work
5. Erection & dismantling of air blowers and connecting pipes , ducts and cables, providing blanks/ dummies at the required locations and conducting gas-tightness test is in the scope contract and shall be carried out within the quoted price.

1.9.2. NEW CONTROL ROOM SHIFTING STRATEGY FOR 210 MW

- 1. Install all newly supplied ESP switchgear panels, EC panels in new control room.**
- 2. Install newly supplied Service Transformer (NST) in new location near new ESP control room.**

Shifting ESP-A controls from Old control room to new control room

- 1. Isolate electrically all ESP-A Electrical Panels from the old control room.**
- 3. Remove all cables between old control room ESP-A Electrical panels and Electrical Equipments located in ESP-A.**
- 4. Complete cabling between ESP-A Electrical panels in New control room and Electrical Equipments located in ESP-A (New cables to be used with 5 meter extra length cable for HVR Transformer power, control & screened cables, Emitting Electrode Rapping motors, Support and shaft insulator heaters).**
- 5. Connect ESP-A Switchgear panel with New Service Transformer (NST).**
- 6. Charge the ESP-A Electrical panels and charge ESP-A.**

Shifting ESP-B controls from Old control room to new control room

- 1. Isolate electrically all ESP-B Electrical Panels from the old control room.**
- 2. Remove all cables between old control room ESP-B Electrical panels and Electrical Equipments located in ESP-B.**
- 3. Complete cabling between ESP-B Electrical panels in New control room and**

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Electrical Equipments located in ESP-B.(New cables to be used with 5 meter extra length cable for HVR Transformer power, control & screened cables, Emitting Electrode Rapping motors, Support and shaft insulator heaters).

- 4. Connect ESP-B Switchgear panel with New Service Transformer (NST).**

Note: One Service is connected to 2 nos. of ESP Switchgears meant for 2 ESP's.

- 5. Charge the ESP-B Electrical panels and charge ESP-B.**

Shifting ESP-C controls from Old control room to new control room

- 1. Shift Old Service Transformer-1 (OST1) meant for ESP-A and ESP-B panels in Old control room (for which new panels are already commissioned in new control room) in new location near New ESP Control room.**
- 2. Install that Service Transformer (OST1) in new location near New ESP Control room.**
- 3. Isolate electrically all ESP-C Electrical Panels from the old control room.**
- 4. Remove all cables between old control room ESP-C Electrical panels and Electrical Equipments located in ESP-C.**
- 5. Complete cabling between ESP-C Electrical panels in New control room and Electrical Equipments located in ESP-C.(New cables to be used with 5 meter extra length cable for HVR Transformer power, control & screened cables, Emitting Electrode Rapping motors, Support and shaft insulator heaters).**
- 6. Connect ESP-C Switchgear panel with Service Transformer (OST1 which was commissioned in new control room).**
- 7. Charge the ESP-C Electrical panels and charge ESP-C.**

Shifting ESP-D controls from Old control room to new control room

- 1. Isolate electrically all ESP-D Electrical Panels from the old control room.**
- 2. Remove all cables between old control room ESP-D Electrical panels and Electrical Equipments located in ESP-D.**
- 3. Complete cabling between ESP-D Electrical panels in New control room and Electrical Equipments located in ESP-D.(New cables to be used with 5 meter**

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extra length cable for HVR Transformer power, control & screened cables, Emitting Electrode Rapping motors, Support and shaft insulator heaters).

- 4. Connect ESP-D Switchgear panel with Service Transformer (OST1). As explained earlier, one transformer is connected to 2 switchgears meant for 2 ESP's.**
- 5. Charge the ESP-D Electrical panels and charge ESP-D.**
- 6. Shift Old Service Transformer-2 (OST2) meant for ESP-C and ESP-D panels in Old control room (for which new panels are already commissioned in new control room) to in location near New ESP Control room.**
- 7. Install that Service Transformer (OST2) in in new location near New ESP Control room.**
- 8. Demolish Old ESP control room and old electrical panels.**
- 9. Connect the service Transformer (OST2) to ESP Switchgear meant for ESP-E.**
- 10. Erect ESP-E.**
- 11. Complete cabling between ESP-E Electrical panels in New control room and Electrical Equipments located in ESP-E.(New cables to be used with 5 meter extra length cable for HVR Transformer power, control & screened cables, Emitting Electrode Rapping motors, Support and shaft insulator heaters).**
- 12. Charge the ESP-E Electrical panels and charge ESP-E.**

Similar schedule will be adopted for other Units.

GENERAL

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

- 1.10.1 All the works such as cleaning, leveling, aligning, trial assembly, dismantling of certain components for checking and cleaning, surface preparation, fabrication of sheets, tubes and pipes as per general engineering practice and as per BHEL Engineer's instructions at site, cutting, weld depositing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scrapping, lapping, fitting-up etc., as may be applicable in such erection works and are necessary to complete the work satisfactorily, shall be carried out by the contractor as part of the work within the quoted rate. Major machining work, which is only to be carried out in workshops, will be arranged by BHEL.
- 1.10.2 The work shall conform to dimensions and tolerances given in various drawings and quality manuals provided by BHEL. If any portion of work is found to be defective in workmanship not conforming to drawings or other stipulations, the contractor shall dismantle and redo the work duly replacing the defective materials at his cost, failing which the job will be carried out by BHEL by engaging other agencies and recoveries will be effected from contractor's bill towards expenditure incurred including BHEL's overhead charges.
- 1.10.3 Contractor shall execute the work as per sequence and procedure prescribed by BHEL at site. The applicable erection manuals which are available with BHEL site office are to be referred for compliance and guidance before taking up the work. Any rework on this failure to comply with will be to account contractor only. BHEL engineer, depending upon the availability of materials, fronts etc, will decide the sequence of erection and methodology. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the method of erection adopted in erection of similar jobs or for any reason whatsoever.
- 1.10.4 Contractor has to work in close co-ordination with other erection agency at site. BHEL engineer will co-ordinate area clearance. In a project of such magnitude, it is possible that the area clearance may be less/more at a particular given time. Activities and erection program have to be planned in such a way that the milestones are achieved as per schedule/ plans. Contractor shall arrange & augment the resources accordingly.
- 1.10.5 The contractor is strictly prohibited from using BHEL's regular components like angles, channels, beams, plates, pipe/tubes, and handrails etc for any temporary supporting or scaffolding works. Contractor shall arrange himself all such materials. In case of such misuse of BHEL materials, a sum as determined

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by BHEL engineer will be recovered from the contractor's bill. The decision of BHEL engineer is final and binding on the contractor.

- 1.10.6 The contractor will be responsible for the safe custody and proper accounting of all materials in connection with the work. If the contractor has drawn materials in excess of design requirements, recoveries will be affected for such excess draws at the rate prescribed by manufacturing units.
- 1.10.7 No member of the already erected structure/ platform, pipes, grills, platform, other component and auxiliaries should be cut without specific approval of BHEL engineer.
- 1.10.8 Contractors shall ensure that all their Staff/Employees are exposed to periodical training program conducted by qualified agencies/ personnel on ISO 9001 – 2000 Standards.
- 1.10.9 For other agencies, such as piping, cabling, instrumentation, insulation etc., to commence their work from/on the equipments coming under this scope, Contractor has to clear the front, expeditiously and promptly as instructed by BHEL Engineer. Some time it may be required to re-schedule the activities to enable other agencies to commence/continue the work so as to keep the overall project schedule.
- 1.10.10 The terminal points decided by BHEL are final and binding on the contractor for deciding the scope of work and effecting the payment for the work done up to the terminals.
- 1.10.11 For the purpose of planning, contractor shall furnish the estimated requirement of power (month wise) for execution of work in terms of maximum KW demand.
- 1.10.12 On Completion of work, all the temporary buildings, structures, pipe lines, cable etc. shall be dismantled and leveled and debris shall be removed as per instruction of BHEL by the contractor at his cost. In the event of his failure to do so, the expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.
- 1.10.13 All the necessary certificates and licenses required to carry out this scope of work are to be arranged by the contractor then and there at no extra cost.
- 1.10.14 The contractor must obtain the signature and permission of the security personnel of the customer for bringing any of their materials inside the sit

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premises. Without the Entry Gate Pass these materials will not be allowed to be taken outside.

1.10.15 Crane operators deployed by the contractor shall be tested by BHEL before he is allowed to operate the cranes.

1.10.16 All the necessary certificates and licenses required to carry out this scope of work are to be arranged by the contractor then and there at no extra cost.

1.10.17 **SITE INSPECTION**

The owner/employer or his authorized agents may inspect various stages of work during the currency of the contract awarded to him. The contractor shall make necessary arrangements for such inspection and carry out the rectification pointed out by the owner/employer without any extra cost to the owner / employer. No cost whatsoever such duplication of inspection of work be entertained.

1.10.18 **UTILITY POINTS**

Number of utility points (Service / plant air, service / plant water, service / washing steam, inert gas (N₂) etc., shall be indicated in the P & I diagram. The utility points shall be located at convenient point to handle. Contractor has to locate the utility points as advised by site engineer.

FOUNDATIONS AND GROUTING

- 1.11.1 Foundation for the equipments to be erected shall be provided by BHEL. The dimension of the foundation and anchor bolt pits shall be checked by the contractor for their correctness as per drawings. Further, top elevation of foundations shall be checked with respect to bench mark etc. All adjustments of foundations surfaces, enlarging the pockets in foundations etc. as may be required for the erection of equipments plants shall be carried out by the contractor.
- 1.11.2 Cleaning of foundation surfaces, pocket holes and anchor bolt pits etc., de-watering, making them free of oil, grease, sand and other foreign materials by soda wash, water wash, compressed air or any other approved methods etc., form/shuttering work are within the scope this work.
- 1.11.3 It shall be contractor's responsibility to check the various equipment foundations for their correctness with respect to level, orientation, dimensions etc., and ascertained dimensions shall be measured and submitted to BHEL for approval before erection. Also minor chipping, dressing of foundations up to 30 mm for obtaining proper face for packer plates/shims, and may be required for the erection of the equipment/plants will have to be carried out by the contractor without extra cost.
- 1.11.4 The surface of foundations shall be dressed to bring the surface of the foundations to the required level and smoothness prior to placement of equipments
- 1.11.5 Foundation pockets are to be cleaned thoroughly before placing the columns/equipments. Verticality of foundation bolts to be checked along with correctness of the threads and freeness of the nuts movement., if required cleaning of the threads to be done with proper dies.
- 1.11.6 The concrete foundation, surfaces shall be properly prepared by chipping, as required to bring the top of such foundation to the required level to provide the necessary roughness for bondage and to ensure enough bearing strength. All laitance and surface film shall be removed and cleaned and the packers placed with suitable mortar prior to erection of the equipment. Packer plates should not only be blue matched with foundation but also inter-packer contact surfaces between the packers and foundation frame etc., shall also be blue matched by Prussian Blue match checks and required percentage contact shall be achieved by chipping and scrapping as per BHEL Engineers instructions.

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- 1.11.7 The certificates of the grout is to be submitted BHEL. If necessary test cubes are to be made and tested at site to ensure the quality of the grout as per relevant IS standards. In case grouting with Portland cement is approved, necessary cement, sand etc to be arranged by the contractor including the fine aggregates.
- 1.11.8 All the materials required for grouting including special cements like Conbextra GPI,GP2, ACC- Shrinkkomb-N20, Sika Anckor, NSG/ NSG -1, CICO Excem GP, or its equivalent as approved by BHEL and other materials like Portland cement, sand etc., are to be arranged by the contractor at his cost. It shall be the responsibility of the contractor to obtain prior approval of BHEL, regarding suppliers, type of grouting cements before procurement of grouting cements.
- 1.11.9 Certain packer plates and shims over and above the quantity received as part of supplies from manufacturing units of BHEL will have to be cut out from steel plates/sheets at site by the contractor to meet site requirement. However machining of the packers, wherever necessary, will be arranged by BHEL at free of cost.
- 1.11.10 PROCEDURE FOR GROUTING :

Contractor has to carry out the grouting as per the work instructions for grouting available at site (As per FQP).

VOID

ERECTION

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

- 1.13.1 Ducts / expansion pieces are dispatched to site in loose walls / plates and these are to be assembled at site before erection.
- 1.13.2 All the dampers, valves, lifting equipments, power cylinders, etc., shall be serviced and lubricated to the satisfaction of BHEL engineer before erecting the same and also during pre commissioning. The bearings of dampers shall be properly cleaned, serviced and lubricated before commissioning at no extra cost. Even after commissioning in the equipments, if there are problems in the operation they have to be attended by the contractor during the tenure of the contract.
- 1.13.3 In the case of structural members / ducts in certain cases, the raw material will be supplied in random lengths and the contractor will have to make up the length / prepare the edges to suit the matching profiles, weld / bolt connect the joints at no extra cost.
- 1.13.4 Any other systems / Components which are integral to ESP & auxiliaries, supplied by BHEL manufacturing units are also to be erected and commissioned by the contractor within the quoted / accepted tonnage rate / lump sum value.
- 1.13.5 **Insulation& cladding:** With respect to insulation and cladding it shall be for the complete ESP including inner roof of ESP.
- 1.13.6 The Erection, Alignment & Testing of HV Rectifier transformer are in the scope of contractor.
- 1.13.7 Erection & dismantling of air blowers and connecting pipes & ducts, providing blanks/ dummies at the required locations and conducting gas-tightness test is in the scope contract and shall be carried out within the quoted rate.
- 1.13.8 Fine fittings and other small bore piping have to be routed according to site conditions and hence shall be done only in position as per the site requirement. Necessary sketch for routing these lines should be got approved from BHEL by the contractor. There is a possibility of slight change in routing the above pipelines when after completion, to suit the site conditions. The contractor should absorb this cost in his quoted rate.

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- 1.13.9 All welded joints should be painted with anti-corrosive paint, once NDE works are over.
- 1.13.10 It shall be the responsibility of the contractor to provide ladders on column for initial works till such time stairways are completed. For this the ladder should not be welded on the column and should be pre-fabricated clamping type ladders. No temporary welding on any structural member is permitted except under special circumstances with the approval of BHEL.
- 1.13.11 Work such as minor rectification of foundation bolts, reaming of holes, drilling of dowels, matching of bolts and nuts, making new dowel pin, etc. are covered in the scope of work.
- 1.13.12 Certain extra lengths of various tubes/pipes and fabricated ducts are provided as erection allowance and the same have to be cut/adjusted to suit the site conditions and layouts or certain small lengths may have to be added for adjustments to suit the site conditions. For any mismatch while matching the joints in tubes, the cutting, adjusting, re welding, addition spool pieces should be done by the contractor to match site conditions without any extra payment.
- 1.13.13 All hangers, supports and anchors (including concreting or welding) shall be installed as per drawing to obtain are reliable and complete installation as per instructions of BHEL Engineer. Normally supports are issued in running meters. Any additional supports as called for by BHEL Engineer shall be fabricated by the contractor and provided at no extra cost. However, the raw material required for fabrication of such supports shall be supplied by BHEL free of cost. (Any machining or threading is involved will only be done by BHEL).
- 1.13.14 All Rotating machineries and equipment shall be cleaned, lubricated, checked for their smooth rotation, if necessary dismantling and refitting before erection. If in the opinion of BHEL Engineer, the equipment is to be checked for clearance, tolerance at any stage of work or during commissioning period, all such works are to be carried out by contractor at his cost.
- 1.13.15 D.S.L / equivalent system for hoisting equipments are also to be erected and commissioned including load testing by the contractor within the quoted rates. Required manpower including electricians is to be arranged by the contractor for carrying out commissioning of electrical hoist and load testing of the above electrical hoist. Required loads will be provided by BHEL free of cost.

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- 1.13.16 The temporary structures/items welded to permanent members/pipes are to be cut and removed without any damage. Any damage so to be made good by the contractor at his cost.
- 1.13.17 Before lifting the heavy components, soft materials like gunny bags to be used while lashing the rope to avoid dents, rubbing marks etc. The capacity, number of sheave pulleys, size of the rope, guide pulley locations are to be decided at site with respect to the capacity and positioning of the winch. The end caps provided at shop for various stubs are to be removed during final fit up only.
- 1.13.18 Prior to erection of any components inspection to be done for any foreign materials and damages and they are to be removed/attended as per BHEL engineer. Fixing, welding of necessary instrumentation tapping points, to be provided on auxiliaries covered within the scope of this specification will also be the responsibility of the contractor and will be done as per the instructions of BHEL Engineer. The fixing / welding of all the above items will be contractor's responsibility even if the
- i) Product groups under which these items are not specifically indicated in the Tender Specification.
 - ii) Items are supplied by an agency other than BHEL
- 1.13.19 For skid mounted equipment, the checking and re-alignment required at site is in the scope of work.
- 1.13.20 All the shafts of rotating equipment shall have to be properly aligned to those of matching equipment to perfection, accuracy as required and the equipment shall be free from excessive vibration so as to avoid overheating of bearings or other conditions which may tend to shorten the life of the equipment.
- 1.13.21 All the equipment's /material to be taken inside the plant building shall be cleaned thoroughly before taking them inside and erect. The contractor shall clean, wherever necessary and paint inside surfaces of the equipment's like coolers, oil tanks, Rubber expansion joints assemble and other components as per instruction of BHEL Engineer during erection at the quoted rate.
- 1.13.22 Wherever equipment's are supplied in pre-fabricated assembled packages, there may be necessity to make minor changes, including strengthening by additional welds. This shall be treated as part of the contractor's scope.

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- 1.13.23 All the bearings, Gearboxes etc., of the equipment and electrical motors to be erected are provided with protective greases only. Contractor shall arrange as and when required by the engineer for cleaning the bearing/gear boxes etc., with kerosene or some other agent if necessary by dismantling some of the parts of the equipment during erection and shall arrange for re-greasing/lubricating them with recommended lubricants and assembling back.
- 1.13.24 Certain instruments like pressure switches, gauges, air sets, regulators, filters, junction boxes, power cylinders, dial gauges, thermometers, flow meters, valve actuators, flow indicators etc., are received in assembled conditions as integral part of equipments. Contractor shall dismantle such instruments and re-erect whenever required prior to commissioning. Sometime this may have to be handed over to store or instrumentation contractor.
- 1.13.25 Attachment, welding of necessary instrumentation tapping points, to be provided on E.S.P / its auxiliaries or pipelines covered within the scope of this tender will also be the responsibility of the contractor and the same will be done as per the instruction of BHEL Engineer.
- 1.13.26 All the motors/pumps shall be stripped opened, thoroughly serviced with proper care and re-assembled properly before erection by the contractor. During servicing, pre-commissioning & commissioning, if any deficiency is observed the same should be taken up with BHEL Engineer at site and rectified at site without any delay.
- 1.13.27 All site-fabricated pipes will be issued in running meters as straight. These are to be cut and edge prepared at site to required length to suit layout as given in the erection drawing. All the attachments like lugs, stoppers, cleats etc., will be supplied as loose items and to be cut and welded to the pipes at site as per erection drawing necessary drilling of holes on main pipe for welding stubs shall also be done at site by the contractor. Fittings like bends, tees, elbow, mitre bends, reducers, flanges etc., will be supplied as loose items.
- 1.13.28 ESP collecting Electrodes may require straightening and repair due to minor transport damages before erection and spot heating in position to get correct alignment which shall be done by contractor within the quoted price.
- 1.13.29 Additional platforms of permanent nature for approaching different equipments, as per site requirement which may not be indicated in drawings shall be fabricated and installed by the contractor. However the contractor will be paid

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for this work on accepted tonnage rate for erection. The material required for platform will be supplied by BHEL free of cost.

- 1.13.30 One layer of insulation mattress on roof top of E.S.P roof (inner) shall be applied before outer roof is placed. The scope shall also include the above work even though the materials are supplied under some other product group and the erected materials shall be paid at the accepted tonnage rate for ESP.
- 1.13.31 Welding of all thermo wells, draft, pressure and temperature instrumentation points and all other instrumentation points on piping and auxiliaries and welding of thermocouple pads are in the scope of work.
- 1.13.32 Wherever hanger and support materials are not received from manufacturing unit in time to suit the erection schedule, contractor shall erect the system on temporary supports to ensure the progress of work. The required structural steel materials will be issued on free of charges by BHEL, either from scrap/spare materials. The same shall be removed and returned to BHEL store after erection of permanent supports.

PROGRESS OF WORK

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

- 1.14.1 Refer forms F -14 to F-18 of volume I D of volume -I book-II. Plan and review will be done as per the formats.
- 1.14.2 Contractor is required to draw mutually agreed monthly erection programs in consultation with BHEL well in advance. Contractor shall ensure achievement of agreed program and shall also timely arrange additional resources considered necessary at no extra cost to BHEL.
- 1.14.3 Progress review meetings will be held at site during which actual progress during the week vis-a-vis scheduled program shall be discussed for actions to be taken for achieving targets. Contractor shall also present the program for subsequent week. The contractor shall constantly update / revise his work program to meet the overall requirement. All quality problems shall also be discussed during above review meetings. Necessary preventive and corrective action shall be discussed and decided upon in such review meetings and shall be implemented by the contractor in time bound manner so as to eliminate the cause of nonconformities.
- 1.14.4 The contractor shall submit daily, weekly and monthly progress reports, manpower reports, materials reports, consumables (gases / electrodes) report, cranes availability report and other reports as per Performa considered necessary by the Engineer as per the format enclosed with this tender document.
- 1.14.5 The contractor shall submit weekly / fortnightly / monthly statement report regarding consumption of all consumables for cost analysis purposes.
- 1.14.6 The monthly report ending on 24th of every month shall be submitted as a booklet and shall contain the following details :-
 - a) Color Progress photographs to accompany the report should be submitted.
 - b) Erection progress in terms of tonnage, welding joints, radiography, stress relieving, etc., completed as relevant to the respective work areas against planned.
 - c) Site Organization chart of engineers & supervisors as on 24th of the month with further mobilization plan

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- d) Category- wise man hours engaged during the previous month under the categories of fitters, welders, riggers, khalasis, grinder-men, gas-cutters, electricians, crane operations and helpers. Data will be split up under the work area of Boiler
- e) Consumables report giving consumption of all types of gases and electrodes during the previous month.
- f) Availability report of cranes
- g) Safety implementation report in the format
- h) Pending material and any other inputs required from BHEL for activities planned during the subsequent month.

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

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

WELDING

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

- 1.15.1 All welders including tack welders, structural and high pressure welder shall be tested and approved by BHEL Engineer before they are actually engaged on work even though they may possess a valid certificate. BHEL reserves the right to reject any welder if the welder's performance is not found to be satisfactory. The contractor shall maintain the records of qualification AND performance of welders. BHEL Engineer will issue all the welders qualified for the work, an identity card. The welder will keep the same with him at work place at all times. He may be stopped from work if he is not found in possession of the same.
- 1.15.2 Engineer may stop any welder from the work if his performance is unsatisfactory for any technical reason or if there is a high percentage of rejection in the joints welded by him. The welders having passed qualification tests does not absolve the contractor of contractual obligation to continuously check the welder's performance.
- 1.15.3 Faulty welds caused by the poor workmanship shall be cut and re-welded at the contractor's expense. The Engineer prior to any repair being made shall approve the procedure for the repair of defective welds. After the repair has been carried out, the compliance shall be submitted to the quality engineer.
- 1.15.4 All expenses for testing of contractor's welders including destructive and Non-destructive tests conducted by BHEL at site or at laboratory shall have to be borne by the contractor only. Limited quantity of tube and pipe material required for making test pieces will be supplied by BHEL free of cost.
- 1.15.5 Only BHEL approved electrodes and filler wire will be used. All electrodes shall be baked and dried in the electric electrode-drying oven to the required temperature for the period specified by the Engineer before these are used in erection work. All welders shall have electrodes drying portable oven at the work spot.
- 1.15.6 The contractor shall also be equipped for carrying out other NDT like LPI /MPI / Hardness test etc. as required as per welding schedules / drawings within the finally accepted price / rates.

TESTING AND COMMISSIONING

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

1.16 TESTING , PRE – COMMISSIONING & COMMISSIONING AND POST COMMISSIONING

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

- 1.16.1 Contractor to provide necessary commissioning assistance from pre-commissioning state onwards and up to continuous operation of the unit & handing over to customer.
- 1.16.2 The contractor shall carry out all the required tests on the equipments erected such as gas tightness test for ESPs & ducts, kerosene leak test, air flow test, etc., using contractor's own consumables, labor and scaffoldings.
- 1.16.3 It is the responsibility of the contractor to provide necessary manpower, tools, tackles and consumable within the quoted price to carry out the Gas Distribution test of ESP.
- 1.16.4 All required tests (Mechanical and electrical) indicated by BHEL and their clients for successful commissioning are included in the scope of these specifications. These tests / activities may not have been listed in these specifications. All the tests should be repeated till all the equipments satisfy the requirement / obligation of BHEL to their customer. All the repairs (shop welded or site welded) arising out of the failures during testing shall be done by the contractor as part of the work.
- 1.16.5 For conducting gas tightness test, it may be required to erect the blowers and connecting ducts and commission the same for tightness test. It is the responsibility of the contractor to erect the blowers & dismantle once the test is over. Contractor shall carry out the work within the quoted rate and BHEL will provide only the required materials, like Blowers venture meter and dummies free of hire charges for conducting the test. Agency to arrange required cable for power supply for the Blowers.
- 1.16.6 Fixing dummy plates at required locations for conducting tightness test and normalizing after the test is over, is also covered in the scope of contract and shall be carried out within the quoted rate. BHEL will provide raw materials for the dummy plates.

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- 1.16.7 The contractor shall carryout any other test as desired by BHEL Engineer on erected equipment covered under the scope of this contract during testing, pre-commissioning, commissioning, and operation, to demonstrate the completion of any part or whole work performed by the contractor.
- 1.16.8 In case, any rework is required because of contractor's faulty erection, which is noticed during pre-commissioning and commissioning, the same has to be rectified by the contractor at his cost. If any equipment / part are required to be inspected during pre-commissioning and commissioning, the contractor will dismantle / open up the equipment / part and reassemble / redo the work without any extra claim.
- 1.16.9 Commissioning of the equipments will involve, trial runs of all the equipments erected, blowing through the lines, flushing of all the lines by air, oil or steam as the case may be, trial run of the equipment and any other works incidental to commissioning.
- 1.16.10 The valves will have to be checked, cleaned or overhauled in full or in part before erection, after acid cleaning, steam blowing and during commissioning as may be necessary.
- 1.16.11 In case any erection defect is detected during various tests / operations trial runs such as loose components undue noises or vibration strain on connected equipment steam or oil or water leakage etc. the contractor shall immediately attend these defects and take necessary corrective measures. If any readjustment and realignments are necessary the same shall be done as per BHEL Engineer's instructions. If any part needs repairs rectification and replacement the same shall be done by the contractor at no extra cost. The parts to be replaced shall be provided by BHEL free of cost if insulation is to be removed to attend any of the defects the cost of removal and reapplication of insulation should be borne by the contractor.
- 1.16.12 The contractor shall carry out cleaning and servicing of valves and dampers / gates actuators prior to pre-commissioning tests and / or trial operations of the plant. A system for recording of such servicing operations shall be developed and maintained in a manner acceptable to BHEL Engineer to ensure that no valves and actuators are left un-serviced.
- 1.16.13 Replacing / Cleaning and servicing of all the filters of the erected equipments during pre-commissioning / commissioning stages shall be done by the contractor within the accepted price.

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- 1.16.14 Contractor may have to replace old/damaged gaskets / packing etc. in the erected equipments and the same shall be carried out by contractor as per requirement. Materials will be given by BHEL.
- 1.16.15 In case any erection defect is detected during various tests / operations trial runs, such as loose components undue noises or vibration strain on connected equipment steam or oil or water leakage etc. the contractor shall immediately attend these defects and take necessary corrective measures. The parts to be replaced shall be provided by BHEL free of cost. If the insulation is to be removed to attend any of the defects the cost of removal and reapplication of insulation should be borne by the contractor.
- 1.16.16 Contractor shall cut / open works if needed, as per BHEL engineer's instructions during commissioning for inspection, checking and make good the works after inspection is over. This contingency shall be included within the quoted value. During commissioning opening of valves, changing of gaskets, attending to leakages, minor modification / rectification works may arise. The contractor has to carry out these works at his cost by providing required manpower in all the three shifts. In case any rework is required because of contractor's faulty erection and which is noticed during commissioning the same has to be rectified by the contractor at his cost.
- 1.16.17 After synchronization, the commissioning activities will continue. It shall be the responsibility of the contractor to provide manpower including necessary consumables, hand tools and supervision as part commissioning assistance.
- 1.16.18 It shall be the responsibility of the contractor to provide various categories of workers in sufficient numbers along with Supervisors during pre commissioning, commissioning and post commissioning of equipment and attending any problem in the equipment erected by the contractor till handing over. The contractor will provide necessary consumables, T&Ps, IMTEs etc., and any other assistance required during this period. Association of BHEL's / Client's staff during above period will not absolve contractor from above responsibilities.
- 1.16.19 It shall be specifically noted that the contractor and employees of the contractor may have to work round the clock during the pre-commissioning, commissioning and post-commissioning period along with BHEL Engineers / customer officials. Hence contractor's quoted rate shall take into consideration of all expenses that will be incurred for such arrangement of personnel including engineers/supervisors.

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- 1.16.20 During commissioning any improvement / repair / rework / rectification / fabrication / modification due to design improvement / requirement is involved, the same shall be carried out by the contractor promptly and expeditiously.
- 1.16.21 Contractor shall lay all necessary electric cables and switches etc. required for the tests and maintain the system till the tests are completed satisfactorily.
- 1.16.22 All lubricants and chemicals required for pre-commissioning, commissioning, testing and lubricants for trial runs of the equipment shall be supplied by BHEL / BHEL's client **at free of charges**. All services including labor and T&P will be provided by the contractor for handling, filling, emptying, refilling etc. The consumption of lubricants / chemicals shall be properly accounted for. Surplus material if any shall be properly stacked / tagged and returned to BHEL / Customer stores at no extra cost to BHEL. BHEL reserves the right to recover costs for wastage by the contractor.
- 1.16.23 Transportation of oil drums from customer's / BHEL's stores. Filling of lubricants and filling of oil for flushing and first filling and subsequent topping up during commissioning and post commissioning is included in the scope of this contract. The contractor shall have to return all the empty drums to the customer/BHEL stores. Similarly transport of chemicals for various pre-commissioning, commissioning activities and related processes and returning of remaining and/or the empty containers of the chemicals to customer/BHEL stores is the responsibility of the contractor.
- 1.16.24 The contractor shall carry out the trial run of motors including checking the direction of rotation in the uncoupled condition checking aligning and coupling the motor to the respective driven equipment. Before starting the motor, IR values of insulation shall be recorded and if found necessary the contractor shall dry out to improve the IR value at no extra cost.
- 1.16.25 Necessary scaffolding and approaches for conducting the tests shall also be within the scope of the contract.
- 1.16.26 Assistance for calibrating / testing the power cylinders / actuators / valves, gauges, instruments, etc. and setting to actuators shall be provided by contractor within the quoted rates.

PAINTING

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

1.17.0 FINAL PAINTING

- 1.17.1 The scope of work shall also include supply and application of final painting of all the erected equipments as required and specified for the components of ESP and its auxiliaries.
- 1.17.2 In the case of steel fabricated items, raw steel after fabrication has to be cleaned and subsequent painting to be carried out.
- 1.17.3 All the exposed metal parts of the equipments including piping, structures, hangers etc., wherever applicable after installation unless otherwise specified the surface protected, are to be first painted with at least one coat of suitable primer and required number of finish coats as indicated in the Painting Specification in TCC which matches the shop primer paint used, after thoroughly cleaning the dust, rust, scales, grease oil, and other foreign materials by wire brushing scrapping and chemical cleaning and the same being inspected and approved by BHEL engineers for painting. Afterwards the above parts shall be finished with as per the instructions of BHEL/Customer official.
- 1.17.4 Paint shall be applied by brushing or by spray painting as per the instruction of BHEL Engineer. Spray painting gun and compressed air arrangement has to be made by the contractor himself. It shall be ensured that brush marks are minimum.
- 1.17.5 Before applying the subsequent coats the thickness of each coat shall be measured and recorded with BHEL / Customer.
- 1.17.6 Paint used shall be stirred frequently to keep the pigment in suspension. Paint shall be of the ready mix type in original sealed containers as packed by the paint manufacturer. No thinners shall be permitted. Paint manufacturer's instructions shall be followed in method of application, handling, drying time etc.,
- 1.17.7 The scope of painting includes application of color bands, lettering the names of the systems equipments; tag Nos. of valves, marking the directions of flow and other data required by BHEL within the quoted rate.
- 1.17.8 All surfaces shall be thoroughly cleaned, free from scales, dirt and other foreign matter. Each coat shall be applied in an even & uniform film free from lumps, streaks, runs, sags and uncoated spots. Each coat (Primer, intermediate, finish)

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shall have a minimum thickness of dry film thickness (DFT) in microns and the DFT of finish paint shall not be less than the specified. Necessary instrument for measuring the thickness of paint applied is to be arranged by the contractor.

- 1.17.9 Finish coat paint, No. of coat and DFT shall be as indicated in the painting specification enclosed in this tender / relevant BHEL document/ customer's specifications. The painting specification which is forming part of this tender as in TCC shall be used as guidelines to be followed.
- 1.17.10 The actual color to be applied shall be approved by the customer before starting of actual painting work.
- 1.17.11 Primer & finish paint shall be of reputed paint supplier approved by BHEL / Customer. Contractor has to procure paints from the **BHEL / Customer approved agencies** only, and the paints should be as per the customer painting specification. The quality of the finish paint shall be as per the standards of IS or equivalent as approved by BHEL / Customer. Before procurement of paint the contractor has to obtain the clearance from BHEL authorities.
- 1.17.12 No paint shall be applied when the surface temp is above 55 deg. Centigrade or below 10 deg. Centigrade, and when the humidity is greater than 90% to cause condensation on the surface or frost / foggy weather.
- 1.17.13 If needed and insisted either by BHEL / Customer in certain cases, spray painting has to be carried out within the Quoted rates.
- 1.17.14 Before commencement of final painting, contractor has to obtain written clearance from BHEL / Customer for effective completion of surface preparation.
- 1.17.15 Before applying the subsequent coats, the thickness of each coat shall be measured and recorded with BHEL/ Customer.
- 1.17.16 PRESERVATION / TOUCH UP PAINTING
- 1.17.16.1 Contractor shall carryout cleaning and preservation / touch up painting for the materials / equipments under this tender specification right from pre-assembly stage to till the equipment is cleared for final painting.
- 1.17.16.2 Any equipment which has been given the shop coat of primer shall be carefully examined after its erection in the field and shall be treated with touch up coat of red oxide primer wherever the shop coat has been abraded, removed or damaged during transit / erection, or defaced during welding.

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1.17.16.3 Mostly the equipment / items/ components will be supplied with one coat of primer paint and one coat of finish paint. However during storage and handling, the same may get peeled off / deteriorate. All such surfaces are to be thoroughly cleaned and to be touch up painted with suitable approved primer and finish paint matching with shop paint / approved final color.

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DAMPERS

1.18:

Painting Scheme for ESP and Gates & Dampers

Manufacturing Painting Scheme:

1) Painting Scheme for ESP Components:

Surface Preparation: Power Tool Cleaning to St3

a. Surface exposed to atmosphere:

Primer: One coat of red oxide Zinc phosphate primer to IS: 12744 to DFT of 30 μm (min)

Finish Paint: Two coats of synthetic of enamel to IS 2932 smoke grey (shade No. 692 of IS 5)

DFT of 2X20 = 40 μm (min)

Total DFT = 70 μm (min)

Surfaces (Insulated & Flue Gas Path)

Primer: Two coat of red oxide Zinc phosphate primer to IS: 12744 to DFT of 2X30 = 60 μm (min)

Emitting Electrode Hook, Machined components and foundation bolts are applied with rust preventive fluid and min DFT = 20 μm .

Stainless Steel, Aluminum and Galvanized Items are not painted.

2) Painting Scheme for Gates and Damper:

Surface exposed to atmosphere

Surface Preparation: Power Tool Cleaning

Primer: One coat of red oxide Zinc Phosphate primer to IS 12744, DFT = 30 μm (min)

Finish Paint: Two coat synthetic of enamel to IS 2932 smoke gray shade no 692 IS 5 to a DFT of 40 μm

Total DFT – 70 μm (min)

Surface under insulation and flue gas path (including Gate frame)

Primer: Two coat red oxide Zinc Phosphate primer to IS 12744, DFT = 60 μm (min)

Machined components and gate blades are protected with temporary rust preventive application.