

Rev 01  
1<sup>st</sup> Jun  
2012

# NOTICE INVITING TENDER

(Document No PS:MSX:NIT)

Bharat Heavy Electricals Limited



Ref:

Date: \_\_/\_\_/\_\_

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**NOTICE INVITING E-TENDER (NIT)**  
**BIDDER TO SUBMIT OFFERS ON PORTAL**  
<https://bheleps.buyjunction.in>

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To

Dear Sir/Madam

**Sub : NOTICE INVITING E-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. Salient Features of NIT**

| SL NO | ISSUE                               | DESCRIPTION  |
|-------|-------------------------------------|--|
| i     | TENDER NUMBER                       | <b>BHEL/NR/SCT/SINGRAULI/ESP/R&amp;M/1055</b>  |
| ii    | Broad Scope of job                  | <b>“Balance work of Renovation and Retrofitting of ESP for Unit No. 5 and 1 (Two Units) of 5 X 200 MW At SSTPS Singrauli”</b>  |
| iii   | <b>DETAILS OF TENDER DOCUMENT</b>   |  |
| 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> <span style="float: right;">Applicable</span>  |
| b     | Volume-IB                           | <i>Special Conditions of Contract (SCC)</i> <span style="float: right;">Applicable</span>  |
| c     | Volume-IC                           | <i>General Conditions of Contract (GCC)</i> <span style="float: right;">Applicable</span>  |
| d     | Volume-ID                           | <i>Forms and Procedures</i> <span style="float: right;">Applicable</span>  |
| e     | Volume-II                           | <i>Price Schedule (Absolute value).</i> <span style="float: right;">Applicable</span>  |
| iv    | Issue of Tender Documents           | <b>From BHEL website (<a href="http://www.bhel.com">www.bhel.com</a>) and <a href="https://bheleps.buyjunction.in">https://bheleps.buyjunction.in</a></b><br>Tender documents will be available at website till due date of submission <span style="float: right;">Applicable</span>   |
| v     | DUE DATE & TIME OF OFFER SUBMISSION | <b>Date : 30/01/2017 , Time : 1500 HRS</b><br><b>Place : on <a href="https://bheleps.buyjunction.in">https://bheleps.buyjunction.in</a></b> <span style="float: right;">Applicable</span>  |
| vi    | OPENING OF TENDER                   | <b>At due date / time</b><br><b>Date : 30/01/2017 , Time : 1530 HRS</b><br>Notes:<br>(1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day.<br>(2) Bidder may depute representative to witness the opening of tender. <b>However it being an e-tender it</b> <span style="float: right;">Applicable</span> |

|      |   |   |                 |
|------|---|---|-----------------|
|      |   | <b>shall be opened online</b>   |                 |
| vii  | <b>EMD AMOUNT</b>   | Rs. 18,94,000/-   | Applicable      |
| viii | <b>COST OF TENDER</b>   | Rs 2000/-.  | Applicable      |
| ix   | <b>LAST DATE FOR SEEKING CLARIFICATION</b>  | <p><b>Five days before bid submission due date.</b><br/> Along with soft version also, addressing to undersigned &amp; to others as per contact address given below-:</p> <p>1) Susmita Basu<br/> Sr. DGM /SCT<br/> Power Sector Northern Region<br/> Plot No. 25, Sector-16A,<br/> BHEL-PSNR, NOIDA-201301(UP)<br/> Tel No. 0120-2416262<br/> Fax- 01202416528<br/> Email – <a href="mailto:susmitabasu@bhelpsnr.co.in">susmitabasu@bhelpsnr.co.in</a></p> <p>2) Eklavya<br/> Sr. Engineer /SCT<br/> Power Sector Northern Region<br/> Plot No. 25, Sector-16A,<br/> BHEL-PSNR, NOIDA-201301(UP)<br/> Tel No. 0120-2416275<br/> Fax- 01202416528<br/> Email – <a href="mailto:eklavya@bhelpsnr.co.in">eklavya@bhelpsnr.co.in</a></p> | Applicable      |
| x    | <b>SCHEDULE OF Pre Bid Discussion (PBD)</b>   |   | Not applicable. |
| xi   | <b>INTEGRITY PACT &amp; DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)</b>                                     | Shri D.R.S Chaudhary, IAS (Retd.)<br>E-1/164 Arera Colony<br>Bhopal- 462016<br>Email: dilip.chaudhary@icloud.com  | Applicable      |
| xii  | <b>Latest updates</b>   | 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) & portal <a href="https://bheleps.buyjunction.in">https://bheleps.buyjunction.in</a> <b>and not in the newspapers</b> . Bidders to keep themselves updated with all such information   |                 |
| xiii | <b>Tender submission</b>  | on portal <a href="https://bheleps.buyjunction.in">https://bheleps.buyjunction.in</a>   |                 |
| xiv  | <b>M/s Rukmani Infra Projects Private Limited, Bhubaneswar shall not be eligible to quote in this tender.</b> |   |                 |

2. 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, **Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.**
3. 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 Noida 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 Noida, Sundays and second/ last Saturdays.

As this tender is an E-Tender and no paper bids will be accepted therefore the scanned copy of the Demand Draft or the Cash Receipt issued by BHEL PSNR should be uploaded in the E procurement portal. Hard Copy of the demand draft should reach BHEL PSNR HQ Noida before the due date and time of bid submission. BHEL shall not be responsible for postal or any other delays in this regard.

4. Unless specifically stated otherwise, bidder shall deposit EMD through Cash Deposit (as permissible under the extant Income Tax Act) (before tender opening), Electronic Fund Transfer credited in BHEL account (before Tender Opening) or Banker's Cheque/ Demand Draft/ Pay Order in favour of Bharat Heavy Electricals Ltd, payable at Noida (along with offer).

'One Time EMD' will not be considered for this tender. All the bidders who have 'One Time EMD' with BHEL and want to participate in this tender, would also submit the requisite amount of EMD as mentioned in Clause No. 1, Salient Features of NIT, Sl. No. (vii) above.

However, the One Time EMD can be adjusted against the EMD applicable against this tender on specific request of bidder.

For Electronic Fund Transfer the details are as below:-

a) **Name of the Beneficiary** -: Bharat Heavy Electricals Limited

b) **Bank Particulars**

|        |  |                       |
|--------|--|-----------------------|
| i).    | Bank Name :-                               | STATE BANK OF INDIA   |
| ii).   | Bank Telephone No.(with STD code):-        | 011-23352180          |
| iii).  | Branch Address:-                           | CAG BRANCH, NEW DELHI |
| iv).   | Bank Fax No. (with STD code) :-            | 011-23353101          |
| v).    | Branch Code :-                             | SBIN0009996           |
| vi).   | 9 Digit MICR Code of the Bank Branch :-    | 110002201             |
| vii).  | Bank Account Number :-                     | 10813608647           |
| viii). | Bank Account Type :-                       | CASH CREDIT           |
| ix).   | 11 Digit IFSC Code of Beneficiary Branch:- | SBIN0009996           |

(Note:- In case of E-Tenders, no paper bids shall be accepted, therefore, the scanned copy of the Banker's Cheque/ Demand Draft/ Pay Order/ Details of payment made through Electronic Fund Transfer should be uploaded in the E-Procurement Portal and hard copy of the same should reach BHEL-PSNR HQ Noida before the due date and time of bid submission. BHEL shall not be responsible for postal or any other delays in this regard.)

For other details please refer General Conditions of Contract.

5. **Procedure for Submission of Tenders**: This is an E-tender floated online through our E-Procurement Site <https://bheleps.buyjunction.in>. The bidder should respond by submitting their offer online only in our e-Procurement platform at <https://bheleps.buyjunction.in>. Offers are invited in two-parts only.

**Documents Comprising the e-Tender**

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

a. **Technical Tender (UN priced Tender)**

All Technical details (eg. Eligibility Criteria requested (as mentioned below)) should be attached in e-tendering module, failing which the tender stands invalid & may be REJECTED. Bidders shall furnish the following information along with technical tender (preferably in pdf format):

- Tender Cost and Earnest money Deposit (EMD) furnished in accordance with NIT Clause 3.0 & 4.0. Alternatively, documentary evidence for claiming exemption as per clause 29 of NIT
- Technical Bid (without indicating any prices).

b. **Price Bid:**

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

### **DO NOT'S**

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

### **Digital Signing of e-Tender**

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

#### **The Requirement:**

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

BHEL has finalized the e-procurement service Provider-:

#### **M/s M Junction services Limited, Kolkata**

Godrej Water Side, 3rd Floor, Tower-1, Plot-V, Block - DP  
Sector - V, Salt Lake, Kolkata-700091, West Bengal, INDIA

The contact details of the service provider are given below:

#### **1. First level:**

- o MJ Helpdesk : 033-66011717, eps.customer@mjunction.in

#### **2. Second Level:**

- o Bhaskar Chakraborty: 8584008205, bhaskar.chakraborty@mjunction.in, eps.customer@mjunction.in
- o Santosh Kumar: 9717149600, santosh.kumar@mjunction.in

#### **3. Third Level:**

- o Rimi Ghosh: 9650044156, rimi.ghosh@mjunction.in

1. Customer care Help Desk of M/s MJUNCTION SERVICES LIMITED, Kolkata:

Tel ~ 033 - 66011717 (From 9.30 am to 5.30 pm),

Mob - 91633 48283 - 86/ 85840 08116 (From 5.30 pm to 8.30 pm)

HELPPDESK email: eps.customer@mjunction.in,

The process of utilizing e-procurement necessitates usage of **DSC (Digital Signature Certificate)( Class 3- SHA2- 2048 BIT- SIGNING & ENCRYPTION)** and you are requested to procure the same

immediately, if not presently available with you. Please note that only with DSC, you will be able to login the e-procurement secured site and take part in the tendering process.

2. The contact details of the DSC Certifying Authority as given below

|   |                   |  |
|---|-------------------|--|
| 1 | <b>GNFC</b>       | <a href="http://www.ncodesolutions.com">www.ncodesolutions.com</a> |
| 2 | <b>e-Mudhra</b>   | <a href="http://www.e-Mudhra.com">http://www.e-Mudhra.com</a>      |
| 3 | <b>Safescrypt</b> | <a href="http://www.safescrypt.com">www.safescrypt.com</a>         |

Vendors are also requested to go through seller manual available on [www.bheleps.buyjunction.in](http://www.bheleps.buyjunction.in)

6. **Not Used**

7. 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. 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. **Assessment of Capacity of Bidders:**

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

- 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 cut off month for reckoning 'Load' shall be the 3<sup>rd</sup> Month preceding the month corresponding to the 'latest date of bid submission', in the following manner -

(**Note:** For example, if latest bid submission is in Jan 2017, then the 'load' shall be calculated up to and inclusive of Oct 2016)

Total number of Packages in hand = Load (P)

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

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

(**Note:** For example, if 'latest date of bid submission' is in Jan 2017, then the 'performance' shall be assessed for a 6 months' period up to and inclusive of Oct 2016 (i.e. from May 2016 to Oct 2016), for all the unit wise identified packages (refer Table I)

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

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

- a) P<sub>1</sub>, P<sub>2</sub>, P<sub>3</sub>, P<sub>4</sub>, P<sub>5</sub>, .... P<sub>N</sub> etc. be the packages (under execution/ executed during the 'Period of Assessment' in all Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope,

excepting packages not commenced. Total number of similar packages for all Regions =  $P_T$  (i.e.  $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$ )

- b) Number of Months 'T<sub>1</sub>' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package P<sub>1</sub>. Similarly T<sub>2</sub> for package P<sub>2</sub>, T<sub>3</sub> for package P<sub>3</sub>, etc. for the tendered scope. Now calculate cumulative total months 'T<sub>T</sub>' for total similar Packages 'P<sub>T</sub>' for all Regions (i.e.  $T_T = T_1 + T_2 + T_3 + T_4 + \dots + T_N$ )
- c) Sum 'S<sub>1</sub>' of 'Monthly Performance Evaluation' Scores (S<sub>1-1</sub>, S<sub>1-2</sub>, S<sub>1-3</sub>, S<sub>1-4</sub>, S<sub>1-5</sub>.... S<sub>1-T1</sub>) for similar package P<sub>1</sub>, for the 'period of assessment' 'T<sub>1</sub>' (i.e.  $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots + S_{1-T1}$ ). Similarly, S<sub>2</sub> for package P<sub>2</sub> for period T<sub>2</sub>, S<sub>3</sub> for package P<sub>3</sub> for period T<sub>3</sub> etc. for the tendered scope for all Regions. Now calculate cumulative sum 'S<sub>T</sub>' of 'Monthly Performance Evaluation' Scores for total similar Packages 'P<sub>T</sub>' for all Regions (i.e. 'S<sub>T</sub>' = S<sub>1</sub> + S<sub>2</sub> + S<sub>3</sub> + S<sub>4</sub> + S<sub>5</sub> + .... S<sub>N</sub>).
- d) **Overall Performance Rating 'R<sub>BHEL</sub>' for the Similar Package/Packages** (under execution/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL

$$\begin{aligned} & \text{Aggregate of Performance scores for all similar packages in all the Regions} \\ & = \frac{\text{Aggregate of months for each of the similar packages for which performance} \\ & \text{should have been evaluated in all the Regions}}{T_T} \\ & = \frac{S_T}{T_T} \end{aligned}$$

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

| Sl. No. | Item Description  | Details for all Regions |                |                |                |                |        |                | Total  |
|---------|---|-------------------------|----------------|----------------|----------------|----------------|--------|----------------|--|
|         |   | (iii)                   | (iv)           | (v)            | (vi)           | (vii)          | (viii) | (ix)           |  |
| 4       | Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3) | S <sub>1</sub>          | S <sub>2</sub> | S <sub>3</sub> | S <sub>4</sub> | S <sub>5</sub> | ...    | S <sub>N</sub> | Sum ( $\Sigma$ ) of columns (iii) to (ix) = S <sub>T</sub> |

- ii). Calculation of Overall 'Performance Rating' (R<sub>BHEL</sub>) in case at least 6 evaluation scores for '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<sub>BHEL</sub>' shall be calculated subject to availability of 'performance scores' for at least 6 'package months' in the order of precedence below:

- 'Period of Assessment' i.e. 6 months preceding and including the cut-off month
- 12 months preceding and including the cut-off month
- 24 months preceding and including the cut-off month
- 36 months preceding and including the cut-off month

In case, R<sub>BHEL</sub> 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<sub>BHEL</sub>) at Power Sector Regions:

| Sl. no. | Overall Performance Rating (R <sub>BHEL</sub> ) | Corresponding value of 'L' |
|---------|---|----------------------------|
| 1       | =60   | NA                         |
| 2       | > 60 and ≤ 65                                   | 0.4                        |
| 3       | > 65 and ≤ 70                                   | 0.35                       |
| 4       | > 70 and ≤ 75                                   | 0.25                       |
| 5       | > 75 and < 80                                   | 0.2                        |
| 6       | ≥ 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<sub>Max</sub> = (R<sub>BHEL</sub> - 60) divided by corresponding value of 'L', i.e. (R<sub>BHEL</sub> - 60)/L

Note:

- In case the value of P<sub>Max</sub> results in a fraction, the value of P<sub>Max</sub> is to be rounded off to next whole number
- For R<sub>BHEL</sub> = 60, P<sub>Max</sub> = '1'
- For R<sub>BHEL</sub> ≥ 80, there will be no upper limit on P<sub>Max</sub>

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if P ≤ P<sub>Max</sub>  
(Where P is calculated as per clause 'i' above)

### IV. Explanatory note:

- Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or C&I etc. at the individual level irrespective of rating of Plant and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, C&I, Civil, Structure etc. is considered individual level of package. For example, in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e. the 'identified

packages as per Table-1 below), the 'PERFORMANCE' part against sl.no. II above, needs to be evaluated considering all the identified packages (i.e. Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above.

ii). Identified Packages (Unit wise)

**Table-1**

| Civil  | Electrical and C&I            | Mechanical   |
|--|-------------------------------|--|
| i). Enabling works                           | i). Electrical                | i). Boiler & Aux (All types including CW Piping if applicable) |
| ii). Pile and Pile Caps                      | ii). C&I                      | ii). Power Cycle Piping/Critical Piping                        |
| iii). Civil Works including foundations      | iii). Others (Elect. and C&I) | iii). ESP  |
| iv). Structural Steel Fabrication & Erection |                               | iv). LP Piping   |
| 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 & Aux                        |
|  |                               | viii). Turbo Blower (including Steam Turbine)                  |
|  |                               | ix). Material Management                                       |
|  |                               | x). Others (Mechanical)  |

iii). Bidders who have not been evaluated for at least six package months in the last 36 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions, shall be considered "NEW VENDOR".

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

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

The "FIRST TIMER" tag shall remain till execution of work for a period of not less than 09 months from the commencement of work of first package or completion of contract or availability of 6 evaluation scores including the previous scores (if any).

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 'Assessment of Capacity of Bidders'.

iv). In the unlikely event of all bidders shortlisted against Technical and Financial Qualification criteria not meeting the criteria on '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<sub>BHEL</sub>'** only, starting from the upper band.

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

a. Up to execution of 90% of anticipated Contract Value in case of Civil, MM, Structural and Turbo Blower Packages

b. Up to Steam Blowing in case of Boiler/ESP/Piping Packages

c. Up to Synchronization in all Balance Packages

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

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

- vii). Performance Evaluation for Activity Month shall be completed in Evaluation Month (i.e. month next to Activity Month) or in rare cases in Post Evaluation Month (i.e. month next to Evaluation Month) after approval from Competent Authority. In case scores are not acceptable, Contractor can submit Review Request to GM Site/ GM Project latest by 25<sup>th</sup> of Evaluation Month or 3 days after approval of score, whichever is later. However, acceptance/rejection of 'Review Request' solely depends on the discretion of GM Site/GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.
- viii). Project on Hold due to reasons not attributable to bidder: -
- a. **Short hold:** Evaluation shall not be applicable for this period; however, Loading will be considered.
  - b. **Long hold:** Short hold for continuous six months and beyond or hold on account of Force Majeure shall be considered as long hold. Evaluation as well as Loading shall not be considered for this period.
- ix). Performance evaluation in CL 9 above is applicable to prime bidder and Consortium partner (or Technical tie up partner) for their respective scope of work.
10. 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. For any clarification on the tender document, the bidder may seek the same over e-procurement portal as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.
12. 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. 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. Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
15. Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at Clause No. 1, Salient Features of NIT, Sl. No. (xi) above.**
- 15a. **Integrity Pact (IP)**
- i) IP is a tool to ensure that activities and transactions between the Company and its Bidders / Contractors are handled in a fair, transparent and corruption free manner. A panel of Independent External Monitors (IEMs) have been appointed to oversee implementation of IP in BHEL.

The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory who signs in the offer) along with techno-commercial bid. Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact

would be a preliminary qualification. Details of IEM for this tender is given at point 1 (xi) above.

- ii) Please refer Section-8 of the IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to the IEM mentioned in the tender.

No routine correspondence shall be addressed to the IEM (phone / post / email) regarding the clarifications, time extensions or any other administrative queries, etc. on the tender issued. All such clarification / issues shall be addressed directly to the tender issuing (procurement) department.

For all clarifications/issues related to the tender, contact details are as per **Clause No. 1, Salient Features of NIT, Sl. No. (ix) above.**

16. 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. In case BHEL decides on a 'Public Opening', the date & time of opening of the PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorised representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders-
18. 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. (a) BHEL reserves the right to go for Reverse Auction (RA) (Guidelines as available on [www.bhel.com](http://www.bhel.com)) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. Bidders to give their acceptance with the offer 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 RA.
- (b) Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit 'Process compliance form' (to the designated service provider) as well as 'Online sealed bid' in the Reverse Auction. Non-submission of 'Process compliance form' or 'Online sealed bid' by the agreed bidder(s) will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on [www.bhel.com](http://www.bhel.com)).
- (c) The bidders have to necessarily submit online sealed bid less than or equal to their envelope sealed price bid already submitted to BHEL along with the offer. **The envelope sealed price bid of successful L1 bidder in RA, if conducted, shall also be opened after RA and the order will be placed on lower of the two bids (RA closing price & envelope sealed price) thus obtained. The bidder having submitted this offer specifically agrees to this condition and undertakes to execute the contract on thus awarded rates.**
- (d) If it is found that L1 bidder has quoted higher in online sealed bid in comparison to envelope sealed bid for any item(s), the bidder will be issued a warning letter to this effect. However, if the same bidder again defaults on this count in any subsequent tender in the unit, it will be considered as fraud and will invite action by BHEL as per extant guidelines for suspension of business dealings with suppliers/ contractors (as available on [www.bhel.com](http://www.bhel.com)).
- (e) If reverse auction process is unsuccessful, sealed envelope price bids of all the techno-commercially qualified bidders shall be opened and the tender shall be processed accordingly. However, the envelope sealed bid(s) of techno-commercially acceptable bidder(s) who had agreed to participate in the RA and had failed to submit the online sealed bid shall not be opened.

20. On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.
21. 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. The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
23. **Not Applicable**
24. The bidder shall upload documents in support of possession of 'Qualifying Requirements' duly self certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.
25. The bidder may have to produce original document for verification if so decided by BHEL.
26. The offers of the bidders who are on the banned/ hold list as also the offer of the bidders, who engage the services of the banned/ hold firms, shall be rejected. The list of **banned/ hold firms** is available on BHEL web site [www.bhel.com](http://www.bhel.com).
- 27.0 It may please be noted that **guidelines/rules** in respect of Suspension of Business dealings', 'Vendor evaluation format', 'Quality, Safety & HSE guidelines', milestone/ completion certificate, etc may **undergo change** from time to time and the latest one shall be followed. The abridge version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on [www.bhel.com](http://www.bhel.com) on "**supplier registration page**".

The offers of the bidders who are under suspension as also the offers of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL website ([www.bhel.com](http://www.bhel.com)).

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

27.1.1 **Commitment by BHEL:**

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

27.1.2 **Commitment by Bidder/ Supplier/ Contractor:**

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

If any bidder/ supplier/ contractor during pre-tendering/ tendering/ post tendering/ award/ execution/ post-execution stage indulges in mal-practices, cheating, bribery, fraud or and other misconduct or formation of cartel so as to influence the bidding process or influence the prices or acts or omits in any manner which tantamount to an offence punishable under any provision of the Indian Penal Code, 1860 or any other law in force in India,

then, action may be taken against such bidder/ supplier/ contractor as per extent guidelines of the company available on [www.bhel.com](http://www.bhel.com) and / or under applicable legal provisions.

#### 28.0 Micro and Small Enterprises (MSE)

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

| Type under MSE | SC/ST owned | Others |
|----------------|-------------|--------|
| Micro          |             |        |
| Small          |             |        |

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

- a) MSE suppliers can avail the intended benefits only if they submit along with the offer, attested copies of either Udyog Aadhaar or EM-II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM-II certificate along with attested copy of a CA certificate (format enclosed as Annexure – 3) where deemed validity of EM-II certificate of five years has expired applicable for the last audited financial year. Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal.
- b) MSEs shall be exempted from payment of tender fee.
- c) MSEs shall be exempted from payment of earnest money at the time of tender deposit. However, there is no exemption of security deposit submission.
- d) Participating MSEs quoting price within price band of L1+15 % shall be considered for award of complete scope of work by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE. In case of more than one such MSE, MSE with lowest price shall be given the first option to match the L1 price. However, MSEs owned by the Scheduled Caste or the Scheduled Tribe entrepreneurs shall be given the preference for matching the L1 price irrespective of their standing in comparative statement of MSE bidders within price band of L1+15 %.

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

#### 30.0 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

for BHARAT HEAVY ELECTRICALS LTD  
(SCT)

#### **Enclosure:-**

- (i) Annexure-1: Pre Qualifying criteria.
- (ii) Annexure-2: Check List.
- (iii) Annexure-3: Chartered Accountant certificate for MSMED
- (iv) Annexure-4: Authorization of representative who will participate in the online Reverse Auction Process
- (v) Annexure-5: Feedback form
- (vi) Annexure-6: Integrity Form
- (vii) Other Tender documents as per this NIT.

**ANNEXURE - 1****PRE QUALIFYING REQUIREMENTS**

|           |  |
|-----------|--|
| JOB       | <b>“Balance work of Renovation and Retrofitting of ESP for Unit No. 5 and 1 (Two Units) of 5 X 200 MW At SSTPS Singrauli”.</b> |
| TENDER NO | <b>BHEL/NR/SCT/SINGRAULI/ESP/R&amp;M/1055</b>  |

| <b>Sr. No.</b> | <b>Name and Description of qualifying criteria</b>   | <b>Bidders claim in respect of fulfilling the PQR Criteria</b> |
|----------------|--|--|
| <b>A</b>       | <b>Submission of Integrity Pact duly signed.</b>   | Applicable   |
| <b>B</b>       | <b>Assessment of Capacity of Bidder to execute the work as as per clause 9.0 of NIT</b>  | Applicable   |
| <b>C</b>       | <b>TECHNICAL CRITERIA</b>  | Applicable   |
|                | Bidder who wish to participate should have ‘Executed’ works for any one of the following during last 7 years, ending on the “latest date of Bid Submission” of tender -:   |  |
| C-1            | One Boiler (consisting of Structure and Pressure part of the same unit as standalone bidder)/ ESP of one unit of $\geq$ 100MW.   |  |
|                | Or   |  |
| C-2            | One STG of $\geq$ 190MW, under direct order of BHEL.   |  |
|                | Or   |  |
| C-3            | R&M/Retrofitting of one ESP of 100 MW or higher involving minimum 800 Tonnes (Erection/Replacement) in single unit.  |  |
| <b>D</b>       | <b>FINANCIAL CRITERIA</b>  | Applicable   |
| <b>D-1</b>     | <b>TURNOVER</b><br>Tenderers should have an average annual turnover minimum of INR 284.10 Lakh of last three Financial Years (2013-2014, 2014-2015, 2015-2016). Bidders shall submit audited annual accounts (balance sheets and profit & loss account) in support of this.<br>In case audited Financial statements have not been submitted for all the three years as indicated above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years.<br><br>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. |  |
| <b>D-2</b>     | <b>NETWORTH</b><br>Net Worth (Only in case of companies) of the bidder should be positive.<br>Note-: Net worth shall be calculated based on the latest   |  |

|   |  |                |
|---|--|----------------|
|   | Audited Accounts as furnished for 'D-1' above.<br>Net worth = Paid up share capital* + Reserves<br>(* : Share Capital OR Partnership Capital OR Proprietor Capital as the case may be)   |                |
| <b>D-3</b>  | <b>PROFIT</b><br>Bidder must have earned profit in any one of the three financial years as applicable in the last three financial years as furnished for 'D-1' above.<br><br>Note-: PROFIT shall be PBT earned during any one year of last three financial years as in 'D-1' above |                |
| <b>E</b>  | <b>APPROVAL OF CUSTOMER</b>  | Applicable     |
| <b>F</b>  | <b>CONSORTIUM CRITERIA</b>   | Not Applicable |
| <b>Explanatory Notes for QR</b>   |  |                |
| <ol style="list-style-type: none"> <li>1. For evaluation of PQR, the credentials of the bidder alone, and not that of the Group Company shall be considered.</li> <li>2. For criteria 'C' , 'Executed' means the bidder should have achieved "BOILER LIGHT UP" in respect of Boiler/ESP and "SYNCHRONISATION" in respect of STG, even if the contract has not been completed or closed.</li> <li>3. Boiler means HRSG or WHRB or any other types of Steam generator</li> <li>4. In case audited financial statements have not been submitted for all the three years as indicated at D-1) above, then the applicable audited statements submitted by the bidders against the requisite 3 years, will be averaged by three.</li> </ol> |  |                |

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

**ANNEXURE - 2****CHECK LIST****NOTE:- Tenderers are required to fill in the following details and no column should be left blank**

|     |  |   |                       |
|-----|--|---|-----------------------|
| 1   | Name and Address of the Tenderer   |   |                       |
| 2   | Details about type of the Firm/Company   |   |                       |
| 3.a | Details of Contact person for this Tender  | Name : Mr/Ms<br>Designation:<br>Telephone No:<br>Mobile No:<br>Email ID:<br>Fax No:   |                       |
| 3.b | Details of alternate Contact person for this Tender  | Name : Mr/Ms<br>Designation:<br>Telephone No:<br>Mobile No:<br>Email ID:<br>Fax No:   |                       |
| 4   | EMD DETAILS  | DD No:                      Date :<br>Bank :                      Amount:<br>Please tick ( <input type="checkbox"/> ) whichever applicable:-<br>ONE TIME EMD / ONLY FOR THIS TENDER |                       |
| 5   | Validity of Offer  | TO BE VALID FOR SIX MONTHS FROM DUE DATE  |                       |
|     |  | APPLICABILITY<br>(BY BHEL)  | ENCLOSED BY<br>BIDDER |
| 6   | Whether the format for compliance with <b>PRE QUALIFICATION CRITERIA</b> (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format | Applicable  | YES / NO              |
| 7   | Audited profit and Loss Account for the last three years   | Applicable/Not<br>Applicable  | YES/NO                |
| 8   | Copy of PAN Card   | Applicable/Not<br>Applicable  | YES/NO                |
| 9   | Not used   |   |                       |
| 10  | Integrity Pact   | Applicable/Not<br>Applicable  |                       |
| 11  | Declaration by Authorised Signatory  | Applicable/Not<br>Applicable  | YES/NO                |
| 12  | No Deviation Certificate   | Applicable/Not<br>Applicable  | YES/NO                |
| 13  | Declaration confirming knowledge about Site Conditions   | Applicable/Not<br>Applicable  | YES/NO                |
| 14  | Declaration for relation in BHEL   | Applicable/Not<br>Applicable  | YES/NO                |
| 15  | Non Disclosure Certificate   | Applicable/Not<br>Applicable  | YES/NO                |
| 16  | Bank Account Details for E-Payment   | Applicable/Not<br>Applicable  | YES/NO                |
| 18  | Tie Ups/Consortium Agreement are submitted as per format   | Applicable/Not<br>Applicable  |                       |

|    |                        |                                       |  |
|----|------------------------|---------------------------------------|--|
| 19 | Not used               |                                       |  |
| 20 | Analysis of Unit rates | Applicable/ <del>Not Applicable</del> |  |

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)

**Annexure-3****Certificate by Chartered Accountant on letter head**

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

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

**1. For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost  
 excluding land and building and the items specified by the Ministry of Small Scale Industries vide  
 its notification No. S.O.1722(E) dated October 5, 2006:  
 Rs.....Lacs

**2. For Service Enterprises:** Investment in equipment (original cost excluding land and building  
 and furniture, fittings and other items not directly related to the service rendered or as may be notified  
 under the **MSMED** Act, 2006:  
 Rs.....Lacs

**(Strike off which is not applicable)**

The above investment of Rs.....Lacs is within permissible limit of  
 Rs.....Lacs for ..... Micro / Small **(Strike off which is not applicable)**

Category under MSMED Act 2006.

Or

The company has been graduated from its original category (Micro/Small) (Strike off which is  
 not applicable) and the date of graduation of such enterprise from its original category is  
 ..... (dd/mm/yyyy) which is within the period of 3 years from the date of graduation  
 of such enterprise from its original category as notified vide S.O. No. 3322(E) dated  
 01.11.2013 published in the gazette notification dated 04.11.2013 by Ministry of MSME.

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant

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

|   |   |  |
|---|---|--|
| 1 | NAME & DESIGNATION OF OFFICIAL  |  |
| 2 | POSTAL ADDRESS (COMPLETE)   |  |
| 3 | TELEPHONE NOS. (LAND LINE & MOBILE BOTH)  |  |
| 4 | FAX NO.   |  |
| 5 | E-MAIL ADDRESS  |  |
| 6 | NAME OF PLACE/ STATE/ COUNTRY, WHEREFROM S/HE WILL PARTICIPATE IN THE REVERSE AUCTION |  |

**ANNEXURE – 5****Feedback Form: From where did you get information reg. this tender**

|   |   |  |
|---|---|--|
| 1 | NEWSPAPER ADVERTISEMENT (NAME)  |  |
| 2 | BHEL WEBISTE (TENDER NOTIFICATION)                                    |  |
| 3 | CENTRAL PUBLIC PROCUREMENT PORTAL OF GOVERNMENT OF INDIA (CPP PORTAL) |  |
| 4 | EMAIL COMMUNICATION FROM BHEL   |  |
| 5 | ANY OTHER SOURCE  |  |

## INTEGRITY PACT

### **Between**

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

### **and**

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

### **Preamble**

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

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

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

## **Section 1 – Commitments of the Principal**

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-
- 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for self or third person, any material or immaterial benefit which the person is not legally entitled to.
- 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
- 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 The Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved

in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.

- 2.1.2 The Bidder(s)/ Contractor(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant 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 Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.
- 2.2 The Bidder(s)/ Contractor(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.

### **Section 3 – Disqualification from tender process and exclusion from future contracts**

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

### **Section 4 – Compensation for Damages**

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

### **Section 5 – Previous Transgression**

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

- 6.1 The Bidder(s)/ Contractor(s) undertake(s) to obtain from all subcontractors 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).
- 6.2 The Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors.
- 6.3 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**

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

## **Section 8 –Independent External Monitor(s)**

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.

- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ Contractor(s) accepts that the Monitor has the right to access without restriction to all contract documentation of the Principal including that provided by the Bidder(s)/ Contractor(s). The Bidder(s)/ Contractor(s) will grant the monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his contract documentation. The same is applicable to Sub-contractor(s). The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/ Contractor(s) / Sub-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 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.
- 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 remainder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.

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

-----  
For & On behalf of the Principal  
(Office Seal)

-----  
For & On behalf of the Bidder/ Contractor  
(Office Seal)

Place-----

Date-----

Witness: \_\_\_\_\_

(Name & Address) \_\_\_\_\_

\_\_\_\_\_

Witness: \_\_\_\_\_

(Name & Address) \_\_\_\_\_

\_\_\_\_\_

Rev 01  
1<sup>st</sup> June  
2012

# TECHNICAL CONDITION OF CONTRACT (TCC) VOL-I

(Document No. PS: MSX:TCC)

BHARAT HEAVY ELECTRICALS  
LIMITED



# TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)

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TECHNICAL CONDITION OF CONTRACT (TCC VOL-I)

TENDER NO. BHEL/NR/SCT/SINGRAULI/ESP/R&M/1055

FOR

“Balance work of Renovation and Retrofitting of ESP for Unit No. 5 and 1 (Two Units) of 5 X 200 MW At SSTPS Singrauli”.

PART-I OF TCC VOL-I



**Bharat Heavy Electricals Limited**  
**(A Govt. of India Undertaking)**  
**Power Sector –Northern Region,**  
**Plot No. 25, Sector-16 A,**  
**Distt.GautamBudh Nagar, Noida-201301**

| <b>Sl. No.</b> | <b>DESCRIPTION</b>  | <b>Chapter No.</b> | <b>Pages</b> |
|----------------|---|--------------------|--------------|
|                | <b>Part-I : Contract Specific Details</b>   |                    |              |
| 1.             | PROJECT INFORMATION   | Chapter-I          | 4            |
| 2.             | PREAMBLE  | Chapter-II         | 5            |
| 3.             | GENERAL SCOPE OF WORK   | Chapter-III        | 6            |
| 4.             | BROAD SCOPE OF WORK   | Chapter-IV         | 7-9          |
| 5.             | SCOPE OF WORK FOR DISMANTLING   | Chapter-V          | 10           |
| 6.             | SCOPE OF WORKFOR RENOVATION& ERECTION (MECHANICAL)  | Chapter-VI         | 11           |
| 7.             | SCOPE OF WORKFOR RENOVATION& ERECTION (ELECTRICAL)  | Chapter-VII        | 12           |
| 8.             | FACILITIES TO BE PROVIDED BY BHEL/NTPC TO CONTRACTOR  | Chapter-VIII       | 13           |
| 9.             | FACILITIES/ RESOURCES TO BE PROVIDED BY CONTRACTOR FOR SUCCESSFUL COMPLETION OF WORK FOR UNIT NO.- 5 &1 (Two units) of 5x200 MW | Chapter-IX         | 14           |
| 10.            | TIME SCHEDULE   | Chapter-X          | 15           |
| 11.            | TERMS OF PAYMENT  | Chapter- XI        | 16-17        |
| 12.            | TAXES AND OTHER DUTIES  | Chapter-XII        | 18-19        |
| 13.            | WARRANTY PERIOD/DEFECT LIABILITY  | Chapter-XIII       | 20           |
| 14.            | RATE SCHEDULE   | Chapter-XIV        | 21           |

**TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)**

**CHAPTER-I: PROJECT INFORMATION**

| <b>1.0 Project information</b> |                         |   |                |   |                 |         |
|--------------------------------|-------------------------|---|----------------|---|-----------------|---------|
| <b>Sl. No.</b>                 | <b>Title</b>            | <b>Description</b>  |                |   |                 |         |
| 1.1                            | NAME OF THE OWNER       | NATIONAL THERMAL POWER CORPORATION LTD. (NTPC)  |                |   |                 |         |
| 1.2                            | ADDRESS                 | SINGRAULI SUPER THERMAL POWER STATION<br><br>SHAKTINAGAR<br><br>SONEBHADRA (U.P.)<br><br>231222 |                |   |                 |         |
| 1.3                            | EXISTING                | 5x200 MW  |                |   |                 |         |
| 1.4                            | NEAREST RAILWAY STATION | SHAKTINAGAR (3 KM) on East Central Railway  |                |   |                 |         |
| 1.5                            | NEAREST ROAD            | VARANASI (206 KM)   |                |   |                 |         |
| 1.6                            | NEAREST CITY            | VARANASI (206 KM)   |                |   |                 |         |
| 1.7                            | NEAREST AIRPORT         | VARANASI (206 KM)   |                |   |                 |         |
| 1.8                            | HIGHEST TEMPERATURE     | 46 deg C  |                |   |                 |         |
| 1.9                            | LOWEST TEMPERATURE      | 1deg C  |                |   |                 |         |
| 1.10                           | ELEVATION               | 301 meters  |                |   |                 |         |
| 1.11                           | WORK STATUS             |   |                |   |                 |         |
| UNIT NO.                       | PASS                    | WEIGHT HANDLED IN PREVIOUS CONTRACT   |                | WEIGHT TO BE HANDLE UNDER THIS CONTRACT |                 | REMARKS |
|                                |                         | DISMANTLING WORKS   | ERECTION WORKS | DISMANTLING WORKS                       | ERECTION WORKS  |         |
| UNIT#5                         | C & D                   | 914.000   | 235.000        | 486.000                                 | 1093.500        |         |
|                                | A & B                   | 000.000   | 000.000        | 1400.000                                | 1328.500        |         |
| <b>TOTAL</b>                   |                         | <b>914.000</b>  | <b>235.000</b> | <b>1886.000</b>                         | <b>2422.000</b> |         |
| UNIT#1                         | C & D                   | 000.000   | 000.000        | 1400.000                                | 1321.500        |         |
|                                | A & B                   | 000.000   | 000.000        | 1400.000                                | 1321.500        |         |
| <b>TOTAL</b>                   |                         | <b>000.000</b>  | <b>000.000</b> | <b>2800.000</b>                         | <b>2643.000</b> |         |

TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)

CHAPTER-II: PREAMBLE

2.0

PREAMBLE

2.1

NTPC Singrauli super thermal power project located in Sonbhadra district in Uttar Pradesh comprising of 5 units of 200 MW (Stage-I, Units No.- 1 to 5) and 2 units of 500 MW (Stage-II-Units 6&7) each. The stage-I & stage-II Units are supplied by BHEL and commissioned in 1983-84 and 1986-87 respectively.

The stage-I and stage-II Units are provided with BHEL make ESPs to control the particulate emission. The stage-I ESP (of type 2x 2FAA-6X32-11190-2) was originally designed for an outlet emission of 300 mg/Nm<sup>3</sup> and stage-II ESP (of type 4xFAA-7X36-4x48125-2) was originally designed for an outlet emission of 367 mg/Nm<sup>3</sup>. Due to deterioration in the coal quality & change in the operating condition of the boiler, the present level of emission is more than the specified norms by Pollution Control Board. Therefore now, NTPC intends to take up Renovation & Retrofitting of existing ESPs to meet the latest environmental norms of UP state, to reduce the emission level less than 50 mg/Nm<sup>3</sup>.

**FOR STAGE-I, UNIT NO.- 5 AND1(TWOUNITS) OF 5X200 MW**

The existing ESP's casing will be modified to accommodate taller electrodes of latest design after dismantling of HVRs, outer, inner roof, TR beams and all the existing complete internals, retaining the existing supporting structures, hoppers, casing etc ,In addition to that three numbers of new fields are to be added in series.

Existing ducting system and gates will be modified/replaced/relocated suitably at ESP inlet and outlet.

The existing height of ESP shall be increased up to 25.0 meters and all the internals of existing ESPs will be replaced with the internals of new design. The existing 6 field internals are replaced with 5 fields of new improved design internals by changing field height from 9.0 m to 13.5 m, changing field length to 3.0 & 3.75 meter with 750 mm wide collecting electrode of 400 mm pitch design and superior design of tumbling hammer type rapping mechanism.

Also the existing ESP casing is extended to have two numbers of fields in series between APH outlet and ESP inlet and one new field in series at outlet side of ESP before ID fan, thus totally ESP will have 8 fields in series. The final ESP configuration will be 2 no. of Passes (Four gas paths) per ESP (per boiler).

**Shut Down of Units for renovation works shall be provided by NTPC as per their suitability.**

**It may be possible that shut down of both the units are made available at a time or after some period of interval. According to availability of shut down contractor has to make their arrangement for deployment of suitable numbers of manpower, consumables & T&Ps for entire period of execution of work. Agency has to deploy separate manpower, consumables & T&Ps till completion of work.**

**Over all completion period shall be 26 months from the date of start of work and completion period for each unit shall be 13 month (From start of work of first unit to charging of last pass of second unit).**

**CHAPTER-III: GENERAL SCOPE OF WORK**

|            |   |
|------------|---|
| <b>3.0</b> | <b>GENERAL SCOPE OF WORK</b>  |
| 3.1        | The intent of this specification is to provide services for execution of the project according to most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for the proper and efficient services towards installation of the plant shall not relieve the contractor of the responsibility of providing such services / facilities to complete the work or portion of work awarded to him. The quoted / accepted rates / lump sum price shall deem to be inclusive of all such contingencies.  |
| 3.2        | The contractor shall carry out the work in accordance with standard practices / codes / instructions / drawings / documents / specification supplied by BHEL from time to time.   |
| 3.3        | The work shall conform to dimensions and tolerances given in various drawings and documents that will be provided during erection. If any portion of work is found to be defective in workmanship, not conforming to drawings or other stipulations, the contractor shall dismantle and redo the work duly replacing the defective materials at his cost. Failing which the job will be carried out by BHEL, by engaging other agencies/departmentally and recoveries will be affected from contractor's bills towards expenditure incurred including BHEL's usual overhead charges.  |
| 3.4        | <p>Following shall be the responsibility of contractor and have to be provided within finally accepted rates / prices:</p> <ul style="list-style-type: none"> <li>➤ Provision, as required of all types of labour, supervisors, engineers, watch and ward of the material in his custody at site, tools &amp; tackles, calibration of measuring Instruments/ inspection &amp; testing of equipment as specified and otherwise required for the work, consumables for renovation,retrofitting, erection, testing and commissioning including handling of materials (transporting, stacking, preservation of material received from BHEL store at site).</li> <li>➤ Proper out-turn as per BHEL plan and commitments.</li> <li>➤ Completion of work as per Schedule.</li> <li>➤ Good quality and accurate workmanship for proper performance of the equipments.</li> <li>➤ Repair and rectification.</li> <li>➤ Preservation / Re-conservation of all components during erection / commissioning till handing over to customer.</li> <li>➤ Disposal of scrap &amp; garbage at regular interval to the scrap yard within the SSTPS Shaktinagar.</li> </ul> |
| 3.5        | <p>BHEL-Power Sector (NR) is ISO 9001-2008, ISO 14001-2004, OHSAS 18001-2007 certified company. Quality of work, to customer's satisfaction and system requirements is the essence of these certifications. The contractor in all respects will organize his work, systems, environment, process control documentation, tools, plant, inspection, measuring and testing equipments etc. as per instructions of BHEL engineer.</p> <p>The contractor shall also comply with applicable legislation and regulations with regards to Health, Safety and Environmental aspects for minimizing risk arising from occupational health &amp; safety hazards, controlling pollution and wastage. The Contractor will be responsible for Health, Safety &amp; Environment management (HSE) at site for the construction activities to be carried out by them in accordance with requirements as per SCC and elsewhere in this tender document. The contractor, who is awarded the work, shall have to sign an MOU w.r.t implementation of HSE conditions with BHEL (Safe Work Practices).</p>  |
| 3.6        | In order to meet the environmental concerns it is expected that the contractor shall plant, protect and maintain at least 100 trees or equivalent in the vicinity of the project as per the available space and as per the advice of Engineers by contractor. In case no area is earmarked for tree plantation, the contractor may take up any other equivalent environment related project after due approval of the BHEL Engineer. In case, trees are not planted or other equivalent environment related project is not taken up by the contractor for any reason whatsoever, recovery at the rate of Rs. 500/- (Rupees Five Hundred Only) per tree will be made from the final bill of the contractor.  |

# TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)

## CHAPTER-IV: BROAD SCOPE OF WORK

|            |  |
|------------|--|
| <b>4.0</b> | <b>BROAD SCOPE OF WORK</b>   |
| <b>4.1</b> | <b>Service Portion (ESP)</b>   |
|            | <p><b>DISMANTLING OF EXISTING INTERNALS &amp; OTHER COMPONENTS, DISPOSAL OF THE SAME TO SCRAP YARD, TRANSPORTATION OF MATERIALS FROM STORAGE YARD TO SITE OF WORK, ILLUMINATION IN ESP &amp; CONTROL ROOM AREA AND CARRYING OUT MODIFICATIONS AS REQUIRED, ERECTION, TESTING &amp; COMMISSIONING, APPLICATION OF INSULATION/CLADDING, PAINTING FOR THE WORK OF RENOVATION &amp; RETROFITTING OF EXISTING ELECTROSTATIC PRECIPITATORS &amp; DUCTS OF UNIT NO.- 5 &amp; 1 (TWO UNITS) OF 5X200 MW SETS STAGE-I, AT NTPC, SINGRAULI SUPER THERMAL POWER STATION SHAKTINAGAR, SONEBHADRA (U.P.) BUT NOT LIMITED TO FOLLOWING:</b></p> <ul style="list-style-type: none"> <li>➤ Dismantling of all the internals and associated items required for renovation &amp; retrofitting works and their disposal to scrap yard of existing ESP as per instruction of BHEL/NTPC.</li> <li>➤ Shifting of dismantled reusable items to yard provided by CUSTOMER/BHEL.</li> <li>➤ Preservation &amp; reuse of items after modification, straightening, strengthening, alignment &amp; painting as per instruction of BHEL engineer and as per TCC/Vol-II/1.12</li> <li>➤ Disposal of scrap/garbage/ insulation as per instruction of BHEL/NTPC to scrap yard.</li> <li>➤ Dismantling of OPM from ESP outlet ducts &amp; shifting to another location for reuse.</li> <li>➤ House keeping &amp; area cleaning on daily basis at workplace.</li> <li>➤ Checking, dressing, chipping, grinding, packer setting, leveling of all foundations.</li> <li>➤ Taking the materials from the project storage yard / stores / sheds to erection site.</li> <li>➤ Erection of two new fields at inlet and one new field at outlet side of existing ESP in series and replacement of all the internals of the existing ESP and increasing the height existing ESP.</li> <li>➤ Pre-assembly, modification, relocation, restoration, renovation, retrofitting, erection, alignment of various equipments.</li> <li>➤ Welding as per drawing or as per instruction of BHEL engineer up to their satisfaction wherever required.</li> <li>➤ Cutting, fitting, welding wherever is required as per instruction of BHEL engineer in the materials supplied from MUs to meet the requirement.</li> <li>➤ Insulation and finish painting including arrangement of paints etc.</li> <li>➤ Installation, pre-commissioning, commissioning, testing and post commissioning of all the items and assistance like providing manpower, erection of temporary platform as required during checking and for PG test also.</li> <li>➤ Kerosene test, Rain water test, air tightness test, Gas Distribution test, PG test.</li> <li>➤ Testing of all electrical equipment &amp; charging of ESP field.</li> <li>➤ Unit trial operation, resolving any deficiencies observed and handing over.</li> <li>➤ Illumination/Lighting arrangement for the entire ESP &amp; control room area. Supply for lighting distribution board shall be tapped from Main LT MSB for ESP.</li> <li>➤ Handing over of ESP to customer after completion of work in all respect.</li> <li>➤ Providing all type of assistance required during checking/inspection and further preparation/submission of protocols/logsheets duly signed from BHEL/Customer to site office.</li> </ul> <p>The work to be carried out under the scope of this specification covers work of dismantling, material handling/transportation at site, temporary storage prior to erection, cleaning, preservative painting, renovation, retrofitting, erection, re-erection, alignment, welding, leveling, adjustment, chipping &amp; leveling of foundation, welding of Insulation hooks, plates, insulation of all mechanical equipment, works of all electrical, cabling and C&amp;I, final painting, etc., Gas distribution test, Gas tightness test, all pre-commissioning tests, start-up and initial run of individual equipment, final commissioning, initial run of total ESPs and other items covered in this tender etc. for NTPC Singrauli SSTPS stage-I of Unit no.- 5 and 1 (Two units) of 5x200 MW up to handing over of the unit to BHEL/their customer including PG test of the unit.</p> <p>The work shall conform to dimensions and tolerances given in various drawings, manuals, FQP and other documents that will be provided during erection. If any portion of works is found to be defective in workmanship not conforming to drawings/documents or other stipulations, the contractor shall dismantle and re-do the work duly replacing the defective materials at their own cost, failing which recoveries, as determined by BHEL, shall be effected from contractor's bills.</p> <p>Items dismantled have to be removed, transported and disposed in specified areas within the plant boundary as per instruction of BHEL Engineer.</p> <p>The work to be carried out under this scope covers the complete work for renovation and retrofitting of electrostatic precipitator (ESPs), Ducts, Supports, Approach platforms, Structures, Gates, Actuators Insulation, Painting, testing, commissioning and handing over of Unit set of stage-I, of Unit no. -5 and 1 (Two units) of 5x200 MW at NTPC SINGRAULI SUPER THERMAL POWER STATION and terminals points shall be as per Annexure-7. The work to be carried out under the scope of this specification shall broadly comprise of but not to be limited to the above.</p> |

CHAPTER-IV: BROAD SCOPE OF WORK

**Work is to be carried out in sequence as mentioned below**

**A. PRE-SHUTDOWN ACTIVITIES**

1. Pre-assemblyworks.
2. Modification, strengthening & dismantling of duct supports.
3. Erection oftemporary arrangementsfor lifting purpose .
4. Identification of cables.
5. Laying of new cable trays and cables with tags for the ESP pass to be kept in circuit.
6. Re routing of cable trays, cables, pipe lines (except termination) to the extent possible.
7. Shifting of ESP control room new panels.

**OTHER ITEMS AS DIRECTED BY BHEL REQUIRED FOR RENOVATION OF ESP NOT SPECIFIED AS ABOVE.**

**B. SHORT SHUTDOWN ACTIVITIES**

Shortshutdown period for each unit shall be provided by NTPC as per their suitability for facilitating

1. Dismantling, erection and modification of ducts& supports.
2. Dismantling, erection and relocation of gatesat ESP inlet & outlet.
3. Dismantling, erection of actuators and re-erection/restoration of actuatorsplatforms.
4. Cable termination of actuators, testing, commissioning & trail runs of gates.
5. Replacement of old Panels with new panels in ESP control room.
6. Termination of old cables (old cable are to be reused to make ESP operative, however these cable are to be replaced during renovation & retrofitting work in each pass) with new panels.
7. Testing, commissioning, trail run, field charging of existing ESP after completion of work as prescribed above.

**Above activities must be completed in short shut down period. After completion of works as specified above during short shut down period ESP to be handed over to customer in operating condition. Further depending upon availability of ESP foundations (for extension of new fields at ESP inlet & outlet) a single pass (two gas paths) will be provided for renovation works for limited period as per schedule.**

**OTHER ACTIVITIES AS DIRECTED BY BHEL REQUIRED FOR SHORT SHUTDOWN WORKS OF ESP NOT SPECIFIED AS ABOVE**

**C. SHUTDOWN ACTIVITIES**

**RENOVATION OF ESPBY ISOLATING ONE PASS (TWO GAS PATH) AT A TIME WHEN THE UNIT IN OPERATION OF FIRST UNIT**

**As per availability of ESP foundations, shut down of one pass (two gas path) will be provided for renovation & retrofitting works for limited period of time as per schedule. Agency has to deploy sufficient resources to complete the work within schedule time. On completion ofrenovation,retrofitting,erection, testing & commissioning of new additional fields & existing fields of one ESP pass (two gas paths) in all respects, the pass will be taken in service and then only next pass (two gas paths) will be provided for retrofitting / R&M works.**

**4.2 Supply Portion (ESP)**

Procurement of Paints

Contractor has to supply all paints, primers and other consumables for painting of relevant area of ESP of both Units. BHEL reserves the right to reject any material not found satisfactory. Contractor shall produce manufacturer’s test certificate.

TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)

CHAPTER-IV: BROAD SCOPE OF WORK

|  |  |
|--|--|
|  | <b>Note:</b>   |
|  | Material which will be supplied by contractor as per supply rate schedule for which separate order shall be issued. Price for supply items as per supply rate schedule remains firm i.e. price variation compensation close mentioned in clause no. 2.17 of GCC and overrun compensation in clause no. 2.12 of GCC of contract shall not be applicable for supply order. |
|  | Paints, primers etc to be procured from NTPC/BHEL approved suppliers.  |
|  | Contractor has to supply paints required for painting the total scope of work as envisaged in service portion of contractor.   |
|  | <b>Separate order shall be issued for Service portion (ESP) and Supply Portion(paints).</b>  |

**TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)**

**CHAPTER-V: SCOPE OF WORK FOR DISMANTLING**

|            |  |
|------------|--|
| <b>5.0</b> | <b>SCOPE OF WORK FOR DISMANTLING</b>   |
| 5.1        | <p>Dismantling of insulation, cladding sheets, duct &amp; duct supporting structures as per requirement, funnels, GD housing, gable plates, penthouse, HVRs, cable, cable trays, all the panels in control room, outer roof, inner roof, complete rapping system, all types of electrodes, suspension system, insulator panels, roof beams/TR beam, ESP transformer, illumination system etc.</p> <p><b>Only ESP casing, hoppers &amp; supporting structures, stair case, platforms &amp; galleries, handrails, toe guards are to be retained.</b></p> <p><b>OTHER ITEMS AS DIRECTED BY BHEL REQUIRED FOR RENOVATION OF ESP NOT SPECIFIED AS ABOVE.</b></p> <p>Many of the items of ESP are not in scope of supply hence existing materials are to be reused in each unit after modification, straightening, strengthening, alignment &amp; painting. Extra care should be taken during dismantling works, minimum wastage shall be permitted. It will be the responsibility of contractor to identify the material that can be reused during dismantling works in each unit and make it usable within final quoted rate. Transporting of the entire dismantled scrap and reusable items to yard provided by CUSTOMER/BHEL.</p> <p><b>Total approx. weight to be dismantled will be 4686 MT.</b></p> <p><b>NOTE:-</b></p> <ul style="list-style-type: none"> <li>➤ Dismantling of all the internals &amp; other item shall be done from top of the ESP as the hoppers &amp; casing shells/structures are to be retained. Contractor has to make all necessary &amp; sufficient lifting arrangement like derricks, winches &amp; cranes (telescopic tire mounted &amp; tower cranes) for dismantling/erection work. In each unit only one pass (two gas paths) is proposed to available for renovation &amp; retrofit work at a time. Work can only be taken up after complete isolation of passes. It is responsibility of contractor to ensure complete isolation of passes before start of any work by closing gates &amp; if required some additional arrangement should be done for isolation within quoted rate.</li> <li>➤ Dismantling/strengthening of duct supporting structures at inlet &amp; outlet and other items obstructing the access of crane approach or movement of crane/trailer/hydra has to be removed and restored by contractor after completion of work without any extra cost &amp; as per direction of BHEL/NTPC engineer.</li> <li>➤ <b>Pipe lines, cables &amp; other structures obstructing work or movement/approachability of cranes are to be dismantled &amp; restored/rerouted within the quoted rate.</b></li> </ul> |
|            | <b>Separate order shall be issued for Service portion(ESP) and Supply Portion(paints).</b>   |

**TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)**

**CHAPTER-VI: SCOPE OF WORKFOR RENOVATION& ERECTION (MECHANICAL)**

**6.0 SCOPE OF WORK FOR RENOVATION & ERECTION (MECHANICAL)**

6.1

Shifting of materials from storage area to site. Erection of all the internals of the existing ESP shall be done from top of ESP. For loading of collecting electrodes special arrangement should be done for their loading from top of ESP. Suitable Cranes, derricks & winches may be used for loading purpose. At a time only one pass (two gas paths) will be provided under shut down, and other pass (two gas paths) will be remain in service of same unit. On completion of erection & commissioning of existing fields & new additional fields in all respects, charging of field will be done & on successful completion the pass will taken in service and then only next pass (two gas paths) will be provide for retrofitting & R&M works.

The existing height of ESP shall be increased up to 25.0 meters and all the internals of existing ESPs will be replaced with the internals of new design. The existing 6 field internals are replaced with 5 fields of new improved design internals by changing field height from 9.0 m to 13.5 m, changing field length to 3.0 & 3.75 meter with 750 mm wide collecting electrode, 400 mm pitch design, and by superior design of tumbling hammer type rapping mechanism.

Also the existing ESP casing is extended to have two numbers of fields in series between APH outlet and ESP inlet and one new field in series at outlet side before ID fan, thus totally ESP will have 8 fields in series.

Existing inlet and outlet ducts and its gates, actuators and expansion joint will be replaced after and before the new fields respectively. Existing ducting system will be retained, relocated/erected and modified suitably at the ESP inlet and outlet to the extent necessary.

**Erection of all materials supplied from BHEL MUs as per drawings/ instruction of BHEL engineers but not limited to:**

- Extension of casing wall of existing ESP, erection of posts, TR beams, insulator panels, inner roof, outer roof, HVRs, suspension system, rapping system and all the internals in existing fields.
- Complete erection of additional fields two new fields at inlet and one new field at outlet side by extending the casing, hopper including supporting structure with bearings, casings, all internals, all rapping mechanisms, Hoppers with SS liners, approach platforms, HVRs sets and handling system, all electrical and C&I items.
- Erection of inlet & outlet funnels, GD and gas screens, replacement of inlet/outlet duct and Guillotine gates at both inlet and outlet of ESP passes.
- Erection of duct supporting structure. Replacement/ strengthening the existing ESP supporting structure.
- Erection/laying of all cables, panels in ESP control rooms, all electrical and C&I items.
- Water washing system for ESP and hoppers along with all piping valves and nozzles etc.
- Modification & strengthening of existing duct support columns at inlet outlet by introducing brackets etc to support ESP ducting & new ID bus duct.
- Modification/Change in location of Actuators & Drives with electrical relocation.
- Rerouting of pipelines between boiler & ESP inlet and ESP outlet to accommodate new fields.
- Modification of tower type stair at inlet side by trimming up to rapping platform.
- Modification to make cut out, etc in existing ESP control room to position ESP panels & auxiliary panels for new fields.
- Arranging the air in leakage test materials, test instruments & conducting air leak test for all passes.
- Application of insulation wherever required.
- Existing supports & platforms/stairs to be retained wherever feasible.
- Illumination/ Lighting arrangement for the entire ESP & control room area. Supply for lighting distribution board shall be tapped from Main LT MSB for ESP.

**OTHER ITEMS AS DIRECTED BY BHEL REQUIRED FOR RENOVATION OF ESP NOT SPECIFIED AS ABOVE.**

TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)

CHAPTER-VII: SCOPE OF WORKFOR RENOVATION& ERECTION (ELECTRICAL)

7.0

**SCOPE OF WORK FOR RENOVATION & ERECTION (ELECTRICAL)**

**Electrical and C&I Equipment:**

Panels.,Floor trenches for cable routing,Cables new – LT Control, Power and instrumentation,Insulators (shaft, support & Bushing),Disconnecting switch,Start stop Push button stations,Geared Motors,Junction boxes,ALI,STATCON,Erection of all new electrical and C&I items including microprocessor based ESP management and control system, opacity monitors, ALIs etc.,Safety interlocks system.,Laying of PVC armoured control cable from panel to field mounted equipments. Erection of service transformer and high voltage transformer rectifiers, Erection of cable trays and tray supports. Installation of above and ground earthing. Installation of one set of instruments like pressure gauges for the system. Installation of all pneumatic actuators including pneumatic cylinders, solenoid valves, and pneumatic accessories limits switches etc. Relaying of instrument air pipes to various valves and instruments form the terminal points onward as required. Testing and commissioning of the ESP's. Illumination/ Lighting arrangement for the entire ESP & control room area. Supply for lighting distribution board shall be tapped from Main LT MSB for ESP. Commissioning & trail run of rapping system. Commissioning, charging and trail of ESP fields. Assistance in performing Air leak, GD & PG test.

**OTHER ITEMS AS DIRECTED BY BHEL REQUIRED FOR RENOVATION OF ESP NOT SPECIFIED AS ABOVE.**

**After completion of renovation, retrofitting, erection, testing & commissioning of new additional fields & existing fields of one ESP pass ( two gas paths) in all respects, the pass will be taken in service and then only next pass (two gas paths) will be provided for retrofitting / R&M works.**

The details of equipments to be erected under this work are general as per the weight schedule given in Annexure-1. These details are approximate and meant only to give a general idea about the magnitude of the work involved, actual quantum and type of equipments will be based on the erection documents, which will be furnished in the course of erection.

7.1

The contractor is required to erect actual tonnage (irrespective of any variation plus or minus) which may be necessary to complete their work and commission above equipments and complete the work in all respects as detailed in tender specifications, for which payments shall be released on finally accepted tonnage rates. The contractor undertakes to erect / commission actual quantities as per advice of BHEL Engineer and accordingly the final contract price shall be worked out on the basis of quantities actually erected at site and payments will also be regulated for the same.

The customer M/s. NTPC and / or their Consultant may depute their representative for checking and supervision of important stages of work. The contractor shall be required to provide all facilities for inspection of works, without any cost implications to the BHEL. Any defect in quality of work or deviations from drawings / specifications pointed out during such inspection shall be made good by the contractor in the same way as if pointed out by the BHEL Engineer, without any cost implication to BHEL

**Total approx weight to be erected will be 5065 MT.**

**NOTE:**

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 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 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.

TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)

CHAPTER-VIII: FACILITIES TO BE PROVIDED BY BHEL/NTPC TO CONTRACTOR

|            |  |
|------------|--|
| <b>8.0</b> | <b>FACILITIES TO BE PROVIDED BY BHEL/NTPC TO CONTRACTOR</b>  |
| 8.1        | <p>BHEL/NTPC shall provide limited open space for office and store/ workshop at site free of rental charge. It is the responsibility of the contractor to construct sheds, provide all utilities like electricity, drinking water etc at site, as a part of his scope of work within the accepted rates.</p> <p><b>Raw Water will be provided at one point by BHEL/NTPC</b> from the water pipe line / source at plant premises / plant. <b>Electricity for office will be provided at one point as decided by BHEL/NTPC.</b> Energy Meter for electricity will have to be provided by the Contractor at his own cost. All safety regulations are to be followed by the contractor.</p> <p>Construction power will be provided at one point near the site free of charge by BHEL / customer. Further distribution will have to be made by the contractors at their own cost. Accordingly, required energy meter, all cables, fuses, distribution boards, switches, switchboards, bus bars, earthing arrangements, protection devices e.g. ELCB if any, and any other installation as specified by statutory authority, client in this regard, for drawl of construction power shall be arranged by the contractor <b>at his own cost</b>.. Obtaining approvals, payment of necessary fees, duties etc towards the clearance of such installations, prior to their being put to use or as may be specified, shall be the responsibility of the contractor.</p> <p>In case of non-availability of customer supplied power, it is the responsibility of the contractor to make alternative arrangements. Essential welding jobs shall not be stopped on account of main construction power failure.</p> <p>In case of power cuts / load shedding no compensation for idle labour or extension of time for completion of work will be given to contractor.</p> |
| 8.2        | The Contractor shall be responsible for providing all necessary facilities like residential accommodation, transport, electricity, water, medical facilities etc. at his own cost as required under various labour laws and statutory rules and regulations framed there under to the personnel employed by him.   |
| 8.3        | On completion of work or as and when required by BHEL, all the temporary buildings, structures, pipe lines, cables etc shall be dismantled and leveled and debris shall be removed, as per instructions of BHEL, by the contractor at his cost. In the event of his failure to do so, the Engineer will get it done and expenses incurred shall be recovered from the contractor along with prevailing overheads. The decision of BHEL Engineer in this regard shall be final.   |

**TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)**

**CHAPTER-IX: FACILITIES/ RESOURCES TO BE PROVIDED BY CONTRACTOR**

|            |  |
|------------|--|
| <b>9.0</b> | <b>FACILITIES/ RESOURCES TO BE PROVIDED BY CONTRACTOR FOR SUCCESSFUL COMPLETION OF WORK FOR UNIT NO.- 5 AND 1 (TWO UNITS) OF 5x200 MW</b>  |
| <b>9.1</b> | <b>FACILITIES TO BE PROVIDED BY CONTRACTOR FOR EXCLUSIVE USE OF BHEL</b>   |
|            | <p>The contractor under this contract shall provide 78 Man-months by the contractor exclusively for use by BHEL.</p> <ul style="list-style-type: none"> <li>➤ Qualified computer operators for office work. (26 Man Months)</li> <li>➤ Skilled workers for working in site, store, office and colony. (26 Man Months)</li> <li>➤ Unskilled workers for working in store, office and colony. (26 Man Months)</li> </ul> <p>Persons so deployed shall have to work in extended hours whenever required. Workmen provided as per the above provisions shall be fully trained and experienced in the nature of work for which they are deployed.</p> <p><b>In case contractor fails to provide the above mentioned services, BHEL shall have the right to hire these services from other agencies at the risk and cost of the contractor along with overheads. In case these services are not utilized for any reason whatsoever, fully or partly, recovery at the average rate of Rs 10000.00 per man month for the categories given plus 10% will be made from the final bill of the contractor.</b></p> <p><b>Contractor under this contract shall make site office/ room near to work site for BHEL's engineer for seating capacity of 5- 6 engineers. Site office to be furnished reasonably suitable for BHEL &amp; customers supervisory staff.</b></p> |
| <b>9.2</b> | <b>TOOLS AND PLANTS / IMTE's</b>   |
|            | <p>All the necessary lifting tackles, tools and plants including tractors, trailers, Lorries, trucks, welding rectifiers (16 Nos per unit), oil filtration machine (1 no), huck bolting machine (2 nos.), Pulley blocks, jacks, winches, wire rope, tire mounted telescopic cranes 90/100 MT, Tower cranes 6 MT and above, derrick etc. of suitable capacities &amp; numbers for entire period of contract and other equipment incidental to carry out this work shall have to be arranged by the contractor himself at his cost. Consumables &amp; trained operators for all cranes will be provided by Contractor as required for execution of work. Indicative lists but not limited to are as per Annexure-5.</p>  |
| <b>9.3</b> | <b>CONSUMABLES</b>   |
| 9.3.1      | <p>The contractor shall provide within finally accepted price / rates, all consumables like all welding electrodes (including alloy steel and stainless steel, all gases (inert, welding, cutting), soldering material, dye penetrants. Other erection consumables such as tapes, all types of fasteners, jointing compound, grease, mobile oil, M-seal, Araldite, petrol, CTC / other cleaning agents, grinding and cutting wheels are to be provided by the contractor. Steel, H&amp;S, packers, shims, wooden planks, scaffolding materials hardware items etc required for temporary works such as supports, scaffoldings are to be arranged by him. Sealing compounds, gaskets, gland packing, wooden sleepers, for temporary work, required for completion of work except those which are specifically supplied by manufacturing unit are also to be arranged by him.</p> <p>The contractor shall provide all consumables required for carrying out the work covered under these specifications. All consumables to be used for the work shall have prior approval of BHEL engineer with regard to brand and quality specifications. Test reports / certificates in respect of these consumables, wherever applicable, shall be submitted to BHEL engineer.</p>  |
| 9.3.2      | <p>All the shims, gaskets, packing rope and asbestos rope, which go finally as part of equipment, shall be supplied by contractor free of cost.</p>  |
| <b>9.4</b> | <b>GATE PASS &amp; POLICE VERIFICATION OF PERSONNEL</b>  |
|            | <p>The agency shall arrange entry/exit gate passes for Manpower, Materials &amp; Vehicles from concerned Security Agency of the Customer at their own cost as per the prescribed procedures of the customer. The agency must get the character &amp; antecedents of all personnel deployed to site duly verified from the concerned Police station (Home Town police station/ Shaktinagar concerned SP office).</p>  |

**TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)**

**CHAPTER-X: TIME SCHEDULE**

Retrofitting and Renovation of ESPs for Unit no.-5 and 1 (Two units) of 5x200 MW Units, Stage-I, Singrauli Super Thermal Power Station, NTPC Limited. Completion Period: 26 Months (13 Months per Unit).

| <b>SL. No.</b>               | <b>Activity</b>   | <b>Duration (Days)</b> | <b>Remarks</b>   |
|------------------------------|---|------------------------|--|
| 1.                           | Pre Shut Down activities before shut down of Unit No.-05  | 10                     | Modification, Strengthening & Dismantling of duct supports wherever is possible, rerouting of pipes, cables, trenches, pre assembly works. |
| 2.                           | Shut Down activities during first shut down of Unit No.-05  | 25                     | Erection of gates, Modification of ducts, Isolation of passes, dismantling work, termination of cable, pipes.                              |
| 3.                           | Renovation of ESP for both passes by isolating one pass at a time when the unit in operation of Unit No.-05 | 350                    | Dismantling, Erection and commissioning of passes one by one   |
| 4.                           | Shut Down activities during second shut down of Unit No.-05   | 5                      | GD test, PG test and taking the unit on full load  |
| Total work completion period |   | 390                    | 13 Months  |
| 1.                           | Pre Shut Down activities before shut down of Unit No.-04  | 10                     | Modification, strengthening & Dismantling of duct supports wherever is possible, rerouting of pipes, cables, trenches, pre assembly works. |
| 2.                           | Shut Down activities during first shut down of Unit No.-04  | 25                     | Erection of gates, Modification of ducts, Isolation of passes, dismantling work, termination of cable, pipes.                              |
| 3.                           | Renovation of ESP for both passes by isolating one pass at a time when the unit in operation of Unit No.-04 | 350                    | Dismantling, Erection and commissioning of passes one by one   |
| 4.                           | Shut Down activities during second shut down of Unit No.-04   | 5                      | GD test, PG test and taking the unit on full load  |
| Total work completion period |   | 390                    | 13 Months  |

**Note:**

The contractor is required **to commence the work within 07 days from the date of issue of letter of intent/award** unless BHEL decides to fix any other later date.

Entire scope of work as detailed in tender specification **shall be completed within 26 Month** From start of work of first unit to charging of last pass of second unit (**13 months for each unit**) as per the programs / milestones indicated by BHEL from time to time.

**Contractor has to adopt 3 shift round the clock working at site since the work has to be completed within a tight time schedule**

Contractor has to mobilise adequate resources accordingly to meet BHEL's commitments to their customer as indicated from time to time. **In case due to reasons not attributable to the contractor, the work gets delayed and additional manpower / resources have to be mobilized so as to expedite the work to meet various milestones, same shall be done within the quoted rates as per Rate Schedule, at no extra cost to BHEL. In the event the contractor fails to respond to these requirements, BHEL shall take appropriate actions to meet customer's commitments.**

**TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)**

**CHAPTER-XI: TERMS OF PAYMENT**

|             |   |
|-------------|---|
| <b>11.0</b> | <b>TERMS OF PAYMENT:</b>  |
| 11.1        | The 'Engineer' will certify regarding the actual work executed in the measurement books and bills, which shall be accepted by the contractor in measurement book.   |
| 11.2        | Contractor shall submit bills for the work completed under the specification, once in a month detailing work done during the month. The format for billing shall be approved by BHEL before raising invoices.   |
| 11.3        | Subject to any deduction that BHEL may be authorized to make under the contract, the contractor on the certificate of the Engineer at site be entitled for payment as explained hereunder.  |
| 11.4        | <p><b>PROGRESSIVE PAYMENT on pro-rata basis (85%)</b><br/> <b>(Applicable for installation of all items work for SL. No. B1 of rate schedule)</b><br/>                     15% of the applicable contract unit rate on pro-rata basis on completion of pre-assembly, (if not applicable this portion shall be clubbed with placement in position).<br/>                     20% of the applicable contract unit rate on pro-rata basis on placement in position and rough alignment.<br/>                     15% of the applicable contract unit rate on pro-rata basis on completion of final alignment.<br/>                     20% of the applicable contract unit rate on pro-rata basis on welding/bolting/fixing.<br/>                     5% of the applicable contract unit rate on pro-rata basis on completion of hoppers along with all doors, heating element, pocking doors etc.<br/>                     5% of the applicable contract unit rate on pro-rata basis on completion of inner, outer roof, insulator housing, rectifier transformer etc.<br/>                     5% of the applicable contract unit rate on pro-rata basis on completion of erection of emitting &amp; collecting rapping system with all drives.</p> <p><b>Milestone payments (15%)</b><br/>                     1. 1.0 % on successful completion of Air &amp; Gas tightness test.<br/>                     2. 1.0 % on successful completion of gas distribution test.<br/>                     3. 1.0 % on successful charging of fields.<br/>                     4. 2.0 % on trial run and handing over of unit.<br/>                     5. 2.0 % on completion of painting works.<br/>                     6. 1.0 % on area cleaning, temporary cutting/removal and return of scrap.<br/>                     7. 1.0 % on attending punch list points/pending point's liquidation.<br/>                     8. 1.0 % on submission of 'As Built Drawings".<br/>                     9. 1.0 % on material reconciliation.<br/>                     10. 1.0 % on completion of contractual obligations.<br/>                     11. 1.0 % on completion of ETC of illumination system.<br/>                     12. 2.0 % on completion of PG test.</p> |
| 11.5        | <p><b>PROGRESSIVE PAYMENT on pro-rata basis (100 %)</b><br/> <b>(Applicable for dismantling work for SL. No. B2 of rate schedule)</b><br/>                     1. 2 % of the applicable contract value / unit rate on pro-rata basis payable on completion of total dismantling of insulation &amp; their disposal.<br/>                     2. 4 % of the applicable contract value/ unit rate on pro-rata basis payable on completion of total dismantling of Electrical &amp; C&amp;I related items &amp; their disposal.<br/>                     3. 6 % of the applicable contract value / unit rate on pro-rata basis payable on completion of total dismantling of outer roof, inner roof &amp; housings &amp; their disposal.<br/>                     4. 8 % of the applicable contract value / unit rate on pro-rata basis payable on completion of total dismantling of collecting rapping system, emitting rapping system and gas distribution rapping system &amp; their disposal.<br/>                     5. 10% of the applicable contract value / unit rate on pro-rata basis payable on completion of total dismantling of Outlet &amp; inlet funnel, GD housing system &amp; gable plates &amp; their disposal.<br/>                     6. 5 % of the applicable contract value / unit rate on pro-rata basis payable on completion of total dismantling of Emitting Suspension system &amp; emitting electrodes</p>  |

|      |  |
|------|--|
|      | <p>&amp;their disposal.</p> <p>7. 10 % of the applicable contract value / unit rate on pro-rata basis payable on completion of total dismantling of Collecting suspension system &amp; collecting electrodes &amp; their disposal.</p> <p>8. 5 % of the applicable contract value / unit rate on pro-rata basis payable on completion of total dismantling of LR, TR &amp;insulator panels &amp; their disposal.</p> <p>9. 20 % of the applicable contract value / unit rate on pro-rata basis payable on dismantling of structural, material, relocation/ restoration, straightening, strengthening, alignment, panting as per direction of BHEL engineer, their reuse as per requirement and balanced materials to be transported to store and stacked properly.</p> <p>10. 20 % of the applicable contract value / unit rate on pro-rata basis payable on dismantling of other items not specified above as per instruction of BHEL and area cleaning and return of scrap.</p> <p>11. 10 % of the applicable contract value / unit rate on pro-rata basis payable on completion of dismantling work in all respect.</p> |
| 11.6 | <b>PAYMENT FOR SUPPLY PORTION<br/>(Applicable for ITEM. No SL. No. B3of rate schedule</b>  |
| 11.7 | 100% payment after completion of finish painting as certified by BHEL Engineer.  |

TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)

CHAPTER-XII: TAXES & DUTIES

|            |   |
|------------|---|
| 12.0       | <b>TAXES &amp; DUTIES (SERVICE PORTION-ESP)</b>   |
| 12.1       | 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 <b>Service Tax</b> on output service and <b>Value Added Tax (VAT)</b> on goods shall be as per following clauses.   |
| 12.2       | <b>Service Tax, Swachh Bharat Cess &amp; Krishi Kalyan Cess</b>   |
| 12.2.1     | Service Tax, Swachh Bharat Cess and Krishi Kalyan Cess as applicable on output Services are excluded from contractor's scope; therefore contractor's price/rates shall be <b>exclusive</b> of Service Tax, Swachh Bharat Cess and Krishi Kalyan Cess.   |
| 12.2.2     | Contractor shall obtain prior written consent of BHEL before billing the amount towards such taxes. Where the Service Tax Act permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor. Contractor shall submit to BHEL documentary evidence of Service Tax registration certificate specifying name of services covered under this contract. |
| 12.2.3     | <b>For the purpose of claiming any Service Tax Swachh Bharat Cess and Krishi Kalyan Cess from BHEL, the following procedure shall be adopted :</b>  |
| 12.2.3.1   | Contractor shall submit serially numbered Service Tax, Swachh Bharat Cess and Krishi Kalyan Cess Invoices, signed by him or a person authorized by him in respect of taxable service provided, and shall contain the following, namely:   |
| 12.2.3.1.1 | The name, address and registration number of the contractor   |
| 12.2.3.1.2 | The name and address of the party receiving taxable service (BHEL)  |
| 12.2.3.1.3 | Description, classification and value of taxable service provided and   |
| 12.2.3.1.4 | The Service Tax , Swachh Bharat Cess and Krishi Kalyan Cess payable thereon.  |
| 12.2.3.1.5 | The service invoice for output services provided should show service tax, Swachh Bharat Cess and Krishi Kalyan Cess amount separately.  |
| 12.2.4     | All the five conditions shall be fulfilled in the invoice for payment of Service Tax, Swachh Bharat Cess and Krishi Kalyan Cess by BHEL. Where more than one nature of Service as per Service Tax act is involved in the execution of contract, the invoice mentioned above shall contain the breakup of values for each nature of Service.   |
| 12.2.5     | Name and address of the Contractor should be same in the service tax invoice and monthly bill as it is in the service tax registration certificate. Any change in the name and address should be supported by documentary evidence duly certified by the authorized signatory.  |
| 12.2.6     | Purpose of above requirements, inter-alia, is to enable availment of Cenvat credit by BHEL. As per recent amendments, Time restrictions for taking Cenvat credit is one year from date of invoice. Hence subcontractor must submit its invoice within 30 days from the date of completion of service.<br>Wherever Cenvat credit could not be availed by BHEL due to delay in submission of invoices or for any other reasons attributable to contractors, Liability towards loss of such Cenvat credit shall be passed on to sub-contractors.   |
| 12.2.7     | The documentary evidence of deposition of service tax, Swachh Bharat Cess and Krishi Kalyan Cess is to be submitted at the earliest opportunity.  |
| 12.2.8     | The payment of service tax, Swachh Bharat Cess and Krishi Kalyan Cess as per clause no 12.2 is restricted to the direct transactions between BHEL & its sub-contractor only.  |
| 12.3       | <b>Modalities of Tax Incidence on BHEL</b>  |
| 12.3.1     | Wherever the relevant tax laws permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor.  |

**TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)**

**CHAPTER-XII: TAXES & DUTIES**

|               |   |
|---------------|---|
| <b>12.4</b>   | <b>New Taxes/Levies</b>   |
| 12.4.1        | 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. The reimbursement under this clause is restricted to the direct transaction between BHEL and its subcontractor only.   |
| 12.4.2        | 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.  |
| 12.4.3        | The vendor has to ensure compliances of all laws and taxes so that benefit of inputs are not denied to BHEL by respective authorities.  |
| 12.4.4        | Payments shall be released against RAB provided proper invoices in conformity with the relevant provision of new Act/Rules have been issued by sub-contractor/vendor. Later on if it is noticed that Input Tax Credit is not available to BHEL due to reasons attributable to sub-contractor/vendor, same shall be recovered from next Bill.  |
| <b>12.5</b>   | <b>TAXES &amp; DUTIES (SUPPLY PORTION)</b>  |
| <b>12.5.1</b> | Price quoted should be inclusive of all the applicable charges, taxes and duties, including entry tax. However rates of sales tax, excise duty & other statutory levies should be indicated separately. Variation in excise duty, sales tax/ vat or any other statutory levies during contractual delivery period should be to BHEL's account. BHEL shall issue 'C' form against submission of E1 forms by suppliers for supply of material from outside the state and the road permits shall be issued by the customer, as the material shall be consigned to the ultimate customer. In case of material purchased within the state, vat shall be payable on submission of vat invoices and documentary evidence towards deposit of vat by the vendor. |
| <b>12.5.2</b> | Contractor shall get his organization registered with concerned Sales tax/ VAT authorities within 15 days of award of this contract and forward the same to BHEL. The delay on this account and delay in bringing the material shall be to contractor's account and no extension of time shall be allowed on this account. In case the contractor is already registered for Sales tax/ VAT with Govt. Authorities, the same must quote his registration no. While submitting their tender.  |
| <b>12.6</b>   | <b>BUILDING &amp; OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1996 (BOCW Act) AND RULES OF 1998 READ WITH BUILDING &amp; OTHER CONSTRUCTION WORKERS CESS Act, 1996 &amp; CESS RULES, 1998.</b>   |
|               | In case any portion of work involves execution through building or construction workers, then compliance to the above titled Acts shall be ensured by the contractor and contractor shall obtain license and deposit the cess under the Act. In the circumstances it may be ensured as under:-  |
| <b>i)</b>     | It shall be the sole responsibility of the contractor in the capacity of employer to forthwith (within a period of 15 days from the award of work) apply for a licence to the Competent Authority under the BOCW Act and obtain proper certificate thereof by specifying the scope of its work. It shall also be responsibility of the contractor to furnish a copy of such certificate of licence / permission to BHEL within a period of one month from the date of award of contract.  |
| <b>ii)</b>    | It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under these act and rules including that of payment / deposit of 1% cess on gross payment made for value of work involving building or construction workers engaged by the contractor within a period of one month from the receipt of payment.   |
| <b>iii)</b>   | It shall be the responsibility of the sub-contractor to furnish the receipts / challans towards deposit of the cess together with the number, name and other details of beneficiaries (building workers) engaged by the sub-contractor during the preceding month.  |
| <b>iv)</b>    | It shall be the absolute responsibility of the sub-contractor to make payment of all statutory payments & compensations to its workers including that is provided under the Workmen's Compensation Act, 1923.   |
| <b>v)</b>     | The contractor shall, however ensure before deposit of any BOCW cess, that customer is not depositing the same in order to avoid excess deposit of cess.  |
| <b>vi)</b>    | The contractor shall bear cost of BOCW cess either by way of deposit or through recovery by BHEL in case the same is deposited by the customer.   |
| <b>vii)</b>   | In case of failure in above mentioned compliances, BOCW Cess @ 1% as well as applicable penalty as specified in BOCW Act/Rules shall be deducted from the contractor  |

TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)

CHAPTER-XIII: WARRANTY PERIOD/DEFECT LIABILITY

4.1

The warranty/defect liability period shall be **18 months** from date of successful completion of work or **12 (Twelve) Months** from date of operation acceptance by BHEL's customer, whichever occurs first. Handing Over of the Unit or Performance Guarantee Test whichever is later and all defects observed during this period shall be attended by the Sub-contractor free of cost.

**TECHNICAL CONDITIONS OF CONTRACT (TCC VOL-I)**

**CHAPTER-XIV: RATE SCHEDULE**

**RATE SCHEDULE**

| A                            | DESCRIPTION OF WORK   | TOTAL VALUE( in Rupees)             |                       |           |                    |
|------------------------------|---|-------------------------------------|-----------------------|-----------|--------------------|
| 1                            | lump sum rate in rupees for entire SOW<br><br><b>Dismantling of existing internals and other components, disposal of the same to scrap yard, transportation of materials from storage yard to site of work and carrying out modifications as required, erection, testing &amp; commissioning and application of paint, insulation/cladding for the work of renovation &amp; retrofitting of existing ESP &amp; ducts of Unit no.- 5 &amp; 1(TWO UNITS) of 5x200 MW Stage-I, at NTPC SSTPS Shaktinagar (U.P).</b><br><br>As per tender specifications. | *****                               |                       |           |                    |
| 2                            | Extra work rate on per man-hour basis (inclusive of supervision, T&P, consumables and all other costs)  | <b>Rs. 60 ONLY</b>                  |                       |           |                    |
| B                            | DESCRIPTION OF WORK   | %                                   | TOTAL VALUE IN RUPEES | QTY. (MT) | Rate in Rupees/ MT |
| 1                            | Rate in Rupees per MT for handling, erection, testing, commissioning, trial operation, including auxiliaries, insulation, electrical, controls and instrumentation etc and handing over of ESP of Unit no.- 5 and 1 (Twounits) of 5x200 MW(for works as detailed in Annexure – 1) as per tender specifications.<br>(Approx. tonnage involved is 5065 MT)  | 83.5 % of Total value at SL NO.- A1 |                       | 5065      |                    |
| 2                            | Lumps Rate in Rupees per MT for dismantling items of ESP, duct and duct supporting structures(for works as detailed in Annexure – 1)<br>( Approx tonnage involved is 4686 MT)   | 16.0 % of Total value at SL NO.- A1 |                       | 4686      |                    |
| 3                            | <b>Supply of Paint.</b>   | 0.5 % of Total value at SL NO.- A1  |                       |           |                    |
| <b>TOTAL PRICE IN RUPEES</b> |   |                                     |                       |           |                    |

- For Sl. No. B 1 & B2 single order shall be issued & for Sl. No. -B3 separate order shall be issued.
- The quantities indicated against each item above are tentative and these are liable to vary depending upon the site requirement. The contractor has to handle / erect / commission all items indicated by BHEL Engineer for achieving unit wise milestone and completion of work.
- Incomplete offer received may not be considered for the subject work.
- The Rate shall be entered in figures as well as in words. In case of difference in rates between words and figures THE LESSER OF THE TWO will be treated as valid rate. In case of omission in quoting any rate, the evaluation will be done considering the highest quoted rate obtained against that item but the work, if awarded, will be on the lowest quoted rate obtained against that item.

Rev 01  
1<sup>st</sup> June  
2012

# TECHNICAL CONDITION OF CONTRACT (TCC) VOL-II

(Document No. PS: MSX:TCC)

BHARAT HEAVY ELECTRICALS  
LIMITED



# TECHNICAL CONDITIONS OF CONTRACT VOL-II

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TECHNICAL CONDITION OF CONTRACT (TCC) - VOL II

TENDER NO. BHEL/NR/SCT/SINGRAULI/ESP/R&M/1055

FOR

“Balance work of Renovation and Retrofitting of ESP for Unit No. 5 and 1 (Two Units) of 5 X 200 MW At SSTPS Singrauli”.

PART-II OF TCC



**Bharat Heavy Electricals Limited  
(A Govt. of India Undertaking)  
Power Sector –Northern Region,  
Plot No. 25, Sector-16 A,  
Distt.GautamBudh Nagar, Noida-201301**

## TECHNICAL CONDITIONS OF CONTRACT VOL-II

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| <b>Sl. No.</b> | <b>DESCRIPTION</b>  | <b>Chapter No.</b> | <b>Pages</b> |
|----------------|---|--------------------|--------------|
| 1.             | General guidelines for Renovation & Erection                      | Chapter-I          | 4-6          |
| 2.             | Testing, pre-commissioning, commissioning and post-commissioning. | Chapter-II         | 7            |
| 3.             | Rerouting   | Chapter-III        | 8            |
| 4.             | Illumination & lightning  | Chapter-IV         | 9            |
| 5.             | Civil works, foundations and grouting                             | Chapter-V          | 10           |
| 6.             | Application of insulation   | Chapter-VI         | 11           |
| 7.             | Finish painting   | Chapter-VII        | 12           |
| 8.             | Annexure  | Chapter-VIII       | 13-26        |

**TECHNICAL CONDITIONS OF CONTRACT VOL-II**

**CHAPTER-I GENERAL GUIDELINES FOR RENOVATION & ERECTION**

|            |  |
|------------|--|
| <b>1.0</b> | <b>GENERAL GUIDELINES FOR RENOVATION &amp; ERECTION</b>  |
| 1.1        | All normal erection and assembly techniques necessary for completion of works under this specification and magnitude have to be carried out. It is not possible to specifically list out all of them. Absence of any specific reference will not absolve the contractor of his responsibility for the particular operation. These would include, Scaffolding and rigging operations, machine / flame / electric cutting, grinding, welding, fitting, filing, straightening, chamfering, chipping, scrapping, as cleaning, checking, leveling, aligning and assembly. Surface grinding, drilling. Temporary erections for alignment, dismantling of certain equipment for checking, cleaning, servicing and site fabrication.   |
| 1.2        | All site welds for casing, inlet & outlet duct connections have to be kerosene tested for establishing leak proof.   |
| 1.3        | Loading of collecting electrodes shall be done with due care as per BHEL's instructions  |
| 1.4        | Straightness of all collecting electrodes has to be checked on ground prior to loading in to the field. Straightening of the collecting electrodes, if necessary, shall be done by the contractor within the quoted price as per instruction of BHEL engineer.   |
| 1.5        | Bundle of collecting electrodes should be handled only with special fixture supplied for the purpose as regular DU.  |
| 1.6        | Clearances as prescribed between collecting electrodes and with casing wall / emitting electrodes have to be maintained. Spot heating of collecting electrodes wherever called for, shall be done as part of work.   |
| 1.7        | Erection, alignment/ fixing in final position, of high voltage rectifiers of ESP is in the scope of work.  |
| 1.8        | Complete erection, alignment, testing, pre-commissioning and commissioning etc for drive motors of collecting electrodes and emitting electrode rapping mechanism is in the scope of work.   |
| 1.9        | Contractor has to fabricate and erect canopies for motors, actuators etc. as per instruction of BHEL if the same is not indicated in the drawings within the quoted rate. BHEL will supply the material required for platforms/canopies in random lengths & sizes.   |
| 1.10       | It shall be the responsibility of the contractor to provide temporary ladders on columns for initial works, if required, till permanent ladder/ stairways are completed. Material and fabrication of temporary ladders is in the scope of contractor. All temporary ladders are to be of bolting type and no welding on to permanent members will be permitted.  |
| 1.11       | Following installation jobs are also to be carried out by the contractor within his quoted price.<br>A) Matching flanges along with all bolts, nuts, gaskets, and all the expansion joints etc. as required to be connected to the ESPs to the duct wall.<br>B) Flue gas inlet distribution system complete with perforated plates, turning vanes, deflector plates, flow splitters, guide vanes and all necessary gas flow control devices in the inlet and outlet cones and duct warranted by the results of flow model test, complete duct stiffening devices, interior bracings, slide plates, access doors, brackets, supporting structures, hangers, sampling connections, etc.<br>C) Rapping system complete with structural supporting frame, drives, and automatic rapping control, etc.<br>D) Ash hoppers complete with panel type heaters, level monitors and indicators, outlet flanges, jointing material, poke holes, access doors and walkways beneath the hoppers.<br>E) Opacity monitors complete with all accessories at the outlet of each gas stream of each<br>F) Safety devices, safety barriers, etc.<br>G) Monorails with electrically operated hoists on the roof for handling transformer rectifiers. Water washing system for the precipitator and hoppers along with all piping, valves and nozzles etc. |

## TECHNICAL CONDITIONS OF CONTRACT VOL-II

### CHAPTER-I: GENERAL GUIDELINES FOR RENOVATION & ERECTION

|      |  |
|------|--|
| 1.12 | <p>As this is retrofitting work and many of the items are to be reused &amp; hence extra care to be taken during dismantling. Details of items are as mentioned below:</p> <ol style="list-style-type: none"> <li>1. Existing support bearings to be retained for all rows and new support bearings supplied for new rows of ESP supporting columns.</li> <li>2. GD rapping assembly to be retained and reused.</li> <li>3. Existing inspection doors to be retained.</li> <li>4. Existing TR beams are to be preserved and reused as per drgs.</li> <li>5. All existing roof panels to be preserved and reuse.</li> <li>6. Existing hopper ridges are to be retained.</li> <li>7. All existing insulator panels to be preserved and reused.</li> <li>8. Existing panel's assembly to be preserved and reused.</li> <li>9. Existing casing panels are to be retained.</li> <li>10. Existing platforms are to be preserved and reused.</li> <li>11. Existing galleries and handrails with toe guards are to be preserved and reused.</li> <li>12. Existing outer roof panels shall be dismantled &amp; reused as per detail mentioned in drawings.</li> <li>13. Existing illumination post/poles and other associated items shall be preserved &amp; reused.</li> <li>14. Existing TR handling arrangement shall be preserved &amp; reused.</li> <li>15. HVR supports/stand shall be preserved and reused.</li> <li>16. All the deflection plates shall be preserved &amp; reused.</li> </ol> |
| 1.13 | Temporary blanking of ESP inlet / outlet for commissioning, if required, has to be done by contractor free of cost.  |
| 1.14 | Instrument tapping coming on the ESP to be welded/fitted by the contractor within the quoted price.  |
| 1.15 | Fixing of deflection plates in the inlet screen sheet of ESP as per flow model report, drawing, to be provided by BHEL. However, adjustment / re-positioning of the plates may be required to be done by the contractor during gas distribution test within the quoted rate.   |
| 1.16 | All the collecting and emitting frames are to be checked in dimension and pitches before erection. All the readings are to be logged.  |
| 1.17 | Any fixtures, scaffolding materials, approach ladder, concrete block supports, steel structures required for temporary supporting, pre-assembly or checking, welding, lifting and handling during pre-assembly and erection shall be arranged by contractor at his cost.   |
| 1.18 | No members of any ladder / structure / platform should be cut without specific approval of BHEL. In case it is necessary to cut, the contractor shall rectify / repair in a manner acceptable to BHEL / customer without any additional cost.  |
| 1.19 | The contractor shall erect scaffolding / temporary platforms for erection. These should be of adequate capacity and shall never be over loaded. These should be replaced when not found suitable during erection work and dismantled on work completion and removed from work site.  |
| 1.20 | It shall be the responsibility of the contractor to provide ladders on columns for initial work 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. In case it is absolutely necessary then the contractor shall cut the temporary structure and rectify the column as directed by the engineer.  |
| 1.21 | The contractor is strictly prohibited in using the Boiler / ESP / Auxiliary Components for any temporary supporting or scaffolding works etc. In case of such misuse a sum of determined by Engineer will be recovered from contractor's bills.  |
| 1.22 | The material for platform section shall be supplied in running meters. These shall be cut to size / shape / fabricated to required size / shape and to be welded by contractor.  |
| 1.23 | Certain adjustment in length may be necessary while erecting pipelines / ducts / casings etc. The contractor should remove the extra lengths / add extra lengths to suit the final layout after preparing edges afresh by adopting specified heat treatment procedures.  |
| 1.24 | Suspensions for ducting will be supplied in running lengths, which shall be cut to size and adjusted as required. Ducts / expansion bellows are dispatched to site in loose walls plates / pieces and these are to be assembled and welded at site along with stiffeners etc., before erection within the finally accepted rates. All joints connecting duct expansion piece and dampers shall be seal welded on inside as well as on outside  |
| 1.25 | Material may require straightening and repair due to minor transport damages before erection and spot heating in position to get correct alignment and same will be carried out by the contractor at no extra cost.  |

## TECHNICAL CONDITIONS OF CONTRACT VOL-II

### CHAPTER-I: GENERAL GUIDELINES FOR RENOVATION & ERECTION

|      |   |
|------|---|
| 1.26 | Some of the rotating equipment and electrical motors are provided with protective greases only. Contractor shall arrange for cleaning of the same with kerosene or some other reagent. If necessary, dismantling some of the parts of the equipment would be necessary. He shall arrange for re-greasing / lubricating them with recommended lubricants and for assembling back the dismantled parts, at quoted rate. Lubricants will, however, be supplied free of cost by BHEL.   |
| 1.27 | Contractor shall arrange changing of preservative oil in the gearboxes, journal and other bearing assemblies of rotating equipment when in storage areas or after erection of equipment as the case may be as per the instructions of BHEL engineer. Necessary lubricants / oil will be supplied by BHEL and the same will be drawn by contractor from BHEL / customer's stores and transporting to site. No additional payment will be made for such works.  |
| 1.28 | All electrical cabling including proper glanding, termination, dressing etc., control and instrumentation works required for completion of Electrostatic Precipitator including its commissioning shall be part of this work. This will include erection of all electrical equipment such as rectifier, transformers, and power supply and control panel, laying of trays and cables and other associated equipment. For cabling job as included in above in the scope, while BHEL shall supply cable lugs (beyond 4 sqmm size free of cost, bidder shall supply necessary copper-tinned cable lugs (upto 4 sqmm), clamp, ferrule, wire markers, pvc binding strap, adhesive tape etc. Bidder's quoted rates shall be inclusive of this. Cable gland shall be of double compression type and of brass material. |
| 1.29 | All rotating machines and equipment shall be cleaned, lubricated, checked for their smooth rotation, if necessary by dismantling and refitting before erection. If, in the opinion of 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.  |
| 1.30 | All the shafts of rotating equipment shall be properly aligned to those of the matching equipment within design tolerances All bearings; shafts and other rotating parts shall be thoroughly cleaned and suitably lubricated before starting.   |
| 1.31 | All electrical panels, control gears, motors and such other devices shall be properly dried by heating to improve IR value, before they are energized. Bearings, slip rings commutators and other exposed parts shall be protected against moisture ingress and corrosion during storage and periodically inspected.  |
| 1.32 | It is possible that a few flanges may not be matching. The contractor shall be required to cut and re-weld the same as and when required without any additional cost.   |
| 1.33 | It may be possible that certain existing structures, hoppers, casing shells and other items requires strengthening/repairing/replacement/patching works. The contractor has to carry out all the works at site as per instruction of BHEL engineer within the quoted rate.  |
| 1.34 | All the gates, actuators etc. shall be serviced and lubricated to the satisfaction of Engineer before erecting the same and during pre- commissioning also.   |
| 1.35 | The Erection, testing and commissioning of all electrically operated valves, actuators and dampers is covered within the scope of this specification.   |

**TECHNICAL CONDITIONS OF CONTRACT VOL-II**

**CHAPTER-II: TESTING, PRE-COMMISSIONING, COMMISSIONING AND POST-COMMISSIONING.**

|            |  |
|------------|--|
| <b>2.0</b> | <b>TESTING, PRE-COMMISSIONING, COMMISSIONING AND POST-COMMISSIONING.</b>   |
| 2.1        | <p>The contractor shall carry out all the required tests and pre-commissioning and commissioning activities required for their successful and reliable operation.</p> <p>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.</p> <p>Specialized test equipment, if any, shall be provided by BHEL / its client free of hire charges. However contractor has to take proper care of the equipment issued to him.</p> <p>Commissioning of ESP shall involve required tests such as air leak test, gas distribution test, motor no load test, rapping mechanism trial runs, interlock tests, charging of transformer fields, commissioning of all electrical equipment / panels, heaters and their proper tuning etc. The contractor shall provide all consumables, labour, scaffoldings and items required for satisfactory testing.</p> <p>All the tests may have to be repeated till all the equipment satisfy the requirement / obligation of BHEL at various stages. The contractor shall do all the repairs for site-welded joints arising out of the failure during testing.</p> |
| 2.2        | <p>The contractor may note that no separate payment shall be released for any temporary works that are to be carried out for conducting pre-commissioning and commissioning tests. Bidders are advised to include expenses on temporary works along with the rates being quoted by them. Broadly the work on temporary systems will be divided as under:</p> <p>Erection etc. of blowers and blanks and putty required for conducting air tightness test and GD Test are to be installed. (Putty to be procured by the contractor).</p> <p>Dismantling of the temporary equipment will be done by the agency that has erected the equipment. He will also return the equipment to the stores.</p>  |
| 2.3        | <p>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&amp;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.</p>   |
| 2.4        | <p>It shall be specifically noted that the above employees of the contractor may have to work round the clock along with BHEL Engineers and hence overtime payment by the contractor to his employees may be involved. The contractors finally accepted rates should be inclusive of all these factors also.</p>   |
| 2.5        | <p>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 is 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.</p>  |
| 2.6        | <p>During commissioning, opening / closing of valves, changing of gaskets, realignment of rotating and other equipment, attending to leakage and adjustments of erected equipment may arise. The finally accepted price / rates shall also include all such work</p>   |
| 2.7        | <p>In case any defect is noticed during tests, trial runs and commissioning such as loose components, undue noise or vibration, strain on connected equipment etc., the contractor shall immediately attend to these defects and take necessary corrective measures. If any readjustment and realignment are necessary, the contractor at his cost shall do the same as per Engineer's instructions including repair, rectification and replacement work. The parts to be replaced shall be provided by BHEL.</p>  |
| 2.8        | <p>At the time of each inspection, the contractor shall take note of the decisions / changes proposed by the Engineer and incorporate the same at no additional cost. The contractor shall carry out any other test as desired by BHEL Engineer/ Manufacturer on erected equipment covered under scope of this contract during testing and commissioning to demonstrate the physical completion of any part or parts of the work performed by the contractor</p>   |

TECHNICAL CONDITIONS OF CONTRACT VOL-II

CHAPTER-III: REROUTING

|            |   |
|------------|---|
| <b>3.0</b> | <b>REROUTING</b>  |
| 3.1        | Rerouting of over headcable trays, cables& pipe lines shall be in contractor's scope. Maximum of the work shall be done during pre shut down period shut down period (except termination), whatever possible as per instruction of BHEL Engineer. Most of the dismantled material will be reused as per instruction of BHEL Engineer, if additional material required for the rerouting works will be arranged by contractor at his own cost. Transporting, proper stacking and preservation of dismantled usable material at storage yard and transporting of the entire dismantled unused items to scrap yard shall be the responsibility of the contractor and shall be done within quoted rate. |

TECHNICAL CONDITIONS OF CONTRACT VOL-II

CHAPTER-IV: ILLUMINATION/ LIGHTING

|            |   |
|------------|---|
| <b>4.0</b> | <b>ILLUMINATION/ LIGHTING</b>   |
| 4.1        | Illumination/ Lighting arrangement for the entire ESP & control room area shall be the part of this scope and shall be completed within quoted rate. Materials shall be provided by BHEL are given as per Annexure-3. Supply for lighting distribution board shall be tapped from Main LT MSB for ESP or as direction of BHEL Engineer. |

TECHNICAL CONDITIONS OF CONTRACT VOL-II

CHAPTER-V: CIVIL WORKS, FOUNDATIONS AND GROUTING

|            |   |
|------------|---|
| <b>5.0</b> | <b>CIVIL WORKS, FOUNDATIONS AND GROUTING.</b>   |
| 5.1        | Foundation and other necessary civil works for supporting structures, equipment etc, will be provided by BHEL. The dimensions of the foundation and anchor bolt pits shall be checked by contractor for their correctness with respect to the above access as per the erection drawings. Further, top elevation column foundations shall be checked with respect to benchmark etc. All minor adjustments of foundation level, dressing & chipping of foundation surfaces for achieving the required elevation of the base of columns, enlarging the pocket of foundation etc., as may be required for the erection of equipment/ plants shall be carried by the contractor within quoted price. Grouting of all columns, equipment base plates, anchor bolt holes etc are included in the scope. The foundation pockets shall be cleaned by using compressed air. The grouting mixture shall be either composed of port land cement or ready mix grout of proven quality. However, in both the cases the vendor has to arrange Portland cement and ready mix grout component respectively within the included cost and no payment shall be released by BHEL to the contractor on this account. Before arranging the type of cements/grouting materials, the contractor must take approval from BHEL/Customer for the brand to be used. Application of the two options will depend on drawing/specification/ instruction of BHEL Engineer. The contractor shall arrange for sand, stone chips, gravels, anti shrink compound, plasticizer, shuttering, grout mixing machine, laboursetc at his cost. The contractor shall prepare the required test pieces/test cubes to ensure the strength of grout and get the same tested in laboratory at his cost. Test cube shall also be taken during grouting for testing in the laboratory and shall be tested at his cost. A necessary arrangement along with watering till complete curing has to be arranged by the vendor. |
| 5.2        | While on the job, care is essential to avoid too much chipping and resultant lowering of level. In case of excess chipping, contractor has to arrange additional packing plates as per requirements provided BHEL Engineer allows it. When required by manufacturers, the embedded sub-sole plates shall be scraped and checked with Prussian blue to get the required contact with frames.   |
| 5.3        | Besides grouting as above, any civil works required for safe and efficient operation of tools and tackles like grouting / excavation/ casting of foundation / anchor points for derricks, winches, guy ropes fastening, etc and any other temporary supports shall also be the contractor's responsibility. For these civil works, all materials including cement and required facilities shall have to be arranged by contractor at his own cost.  |

**TECHNICAL CONDITIONS OF CONTRACT VOL-II**

**CHAPTER-VI: APPLICATION OF INSULATION**

| <b>6.0</b> | <b>APPLICATION OF INSULATION</b>   |
|------------|--|
| 6.1        | All attachment welding, including welding of hooks / supports as per pitch both on equipment shall be done as directed by Engineer. Attachment welding shall have to be done by certified welders. If necessary contractor may have to cut the hooks to correct length without any extra cost to BHEL.   |
| 6.2        | Contractor has to arrange and apply heat resistant primer on welded portions before application of insulation.   |
| 6.3        | The mineral wool mattresses (bonded / un-bonded) / LRB mattresses are received at site in standard sizes. These are to be dressed / cut to suit site requirements by the contractor.   |
| 6.4        | The contractor should ensure that the finished surface of the insulation works conforms to the dimensions and tolerances given in the drawings. Aesthetic finish and accuracy of work are most important. The number of layers / thickness of mineral wool / LRB mattresses shall be as per drawings and as directed by Engineer. For applying the mineral wool mattress, the required holding materials, if necessary by fabrication of rings/ hooks shall be fixed as directed and as per drawings and spec. The contractor should ensure, proper finishing of surface of the insulation and sheeting. |
| 6.5        | It is the responsibility of the contractor to ensure that the insulation materials and sheet metal covering issued to him for application are well protected against loss or damage from weather conditions. Closed / semi closed sheds or any other arrangements required for this will be made by him at his cost. If any damage occurs to the material due to improper storage or due to any causes attributable to the contractor except for normal breakage or damages allowed in such cases, the cost of such damaged material shall be to the account of the contractor.                          |
| 6.6        | Sheet cladding will be fabricated to the sizes and shapes specified in drawings. Beading, swaging, beveling of sheets, crowning the sheets will be carried out by him. Two coats of anti-corrosive black bituminous paint are to be applied on inner surfaces of the cladding. Bitumen sealing compound on the joints is included in the scope of this work. Contractor may note that they will also arrange anti-corrosive black bituminous paint and bituminous sealing compound required for above works at his cost.   |
| 6.7        | Sheet metal cladding over insulation will consists of plain / ribbed / corrugated sheets. The sheets will be supplied in standard sizes. Cutting them to required size, grooving, fabricating bends, boxes etc., for proper covering is contractor's responsibility. Any cutting / bending / welding of fabricated skin casing sheets if required will also be covered within the scope of this contract.  |
| 6.8        | A logbook shall be maintained by the contractor to obtain clearance for application of insulation. If the contractor does the work on his own accord without prior permission the area may have to be redone at his cost.  |
| 6.9        | Contractor is liable for the exact accounting of the material issued to him and he shall make any unaccountable losses good. Wastage allowances for the material issued should be minimum.   |
| 6.10       | The entire surplus, unused materials etc., supplied by BHEL shall be returned to BHEL after the work is over. Materials like gunny bags and packing materials, empty containers may be returned at periodical intervals.   |
| 6.11       | The contractor shall leave certain gaps and opening while doing the work as per instructions of BHEL engineer to facilitate inspection during commissioning and to fix gauges, fittings and instruments. The gaps will have to be finished as per drawings at a later date by the contractor at his cost.  |
| 6.12       | Insulation of expansion joints, gates, etc shall be carried out after NDT / gas tightness test is completed.   |

TECHNICAL CONDITIONS OF CONTRACT VOL-II

CHAPTER-VII: FINISH PAINTING

| 7.0 | <b>FINISH PAINTING</b>  |
|-----|---|
| 7.1 | All exposed metal parts of the equipment, structure and other items at site (covered within the scope of this contract) before/after installations are to be painted. The surfaces are to be thoroughly cleaned of all dirt, rust, scales, grease, oils and other foreign materials by wire brushing, scrapping, and any other method as per requirement of BHEL. The same will be inspected and approved by the engineer before painting.  |
| 7.2 | Mostly the equipment / items/ components will be supplied with one coat of primer paint and one coat of finish paint. However during long storage and handling, the same may get peeled off / deteriorate. Before erecting the material it is essential that 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. Besides above two coats of approved primer paint is to be applied on all the bare / unpainted surfaces. The gas cut stubs would require being ground and rounded.  |
| 7.3 | After applying the primer paints, wherever required, all structure / equipment / items, shall be finish painted with paints as specified by BHEL engineer. Specification of painting will be as per Annexure-6. The number of coats / paint thickness shall be as indicted in the drawing / documents. However at least two coats of finish painting is to be applied. In case proper finish is not obtained in two coats, the contractor shall apply additional coat (s) till proper finish / paint thickness is achieved. Certain equipment / Items are required to be painted with approved quality heat resistant paint / primer. After completion of painting all bright spots shall be cleaned to the satisfaction of Engineer. |
| 7.4 | Contractor has to arrange all paints, primers, tools and other consumables including scaffolding materials required for finish painting at his own cost. Paint is to be BHEL approved make only and painting should be as per color scheme and quality approved / specified by Engineer. Valid Test Certificate for the paint so supplied shall be made available before use of the same on work  |
| 7.5 | The contractor may be required to fill up dents / marks by applying putty before final painting of equipment. All materials and arrangements have to be made within quoted lump sum price/rates.  |
| 7.6 | All the fabricated frames, JB's, instrument racks, Junction box frame, trays, supports, panel base frame, etc., wherever applicable shall be first painted with one coat of primer paint (metal red oxide) and then two coats of synthetic enamel paint of approved shade by BHEL Engineer after thoroughly cleaning the surface of dust, rust, scale, grease, oil, etc., by wire brushing, scrapping or any other suitable method. The quoted rates should be inclusive of all these including arrangement of paints and consumables   |
| 7.7 | All the weld joints of GI cable trays and GI structural members shall be applied with a coat of cold galvanizing zinc paint and paint shall be arranged by contractor at his cost.  |

**DETAILS OF QUANTITIES**

**ESTIMATED WEIGHT FOR ERECTION OF VARIOUS PRODUCT GROUPS**

| <b>PRODUCT GROUP (PG)</b>                                   | <b>DESCRIPTION OF PG</b>                          | <b>DESIGN WEIGHT (MT) UNIT No.-05</b> | <b>DESIGN WEIGHT (MT) UNIT No.- 01</b> |
|---|---|---------------------------------------|--|
| 79& 89  | ESP<br>( As per Annexure-2 )                      | 2397                                  | 2508                                   |
| DC, DM,EC & EM  | ACTUATORS,GATES & OTHERS<br>( As per Annexure-2 ) | 25                                    | 135                                    |
| TOTAL   |   | 2422                                  | 2643                                   |
| <b>TOTAL WEIGHT FOR BOTH UNITS IS APPROXIMATELY 5065 MT</b> |   |                                       |  |

The quantity in scope of dismantling is approximately 1886 MT for Unit No.-05 and 2800 MT for Unit No. – 01 (Total dismantling weight for both units 4686 MT). The quantity for dismantling mentioned is based on the technical assessment made and may vary to some extent. The rates for dismantling to be quoted should be on lump sum basis

**NOTES:**

1. Besides product groups indicated herein, there is likelihood of addition of new productgroups byBHEL’s unitfor release of some items, integral to this work.
2. BHEL’s decision with regard to classification of a particular product group is binding onthecontractor.
3. The weights indicated in above schedule are approximate only and are liable to variationsand alternations.

**Tentative weight for Renovation of ESP package at NTPC Singrauli TPS  
Unit No.-5, Stage-I Units (5 X 200 MW)**

| SL NO | PGMA  | Description                 | Tentative WT(KG) |
|-------|-------|-----------------------------|------------------|
| 1     | 79401 | ROLL/SLIDE SUPPORTS         | 2400             |
| 2     | 79405 | ESP-SUB-DELIVERY COMPONENTS | 291.98           |
| 3     | 79406 | INSULATOR HOUSING ASSEMBLY  | 28226.12         |
| 4     | 79408 | GAS DIST. ASSY              | 37561.14         |
| 5     | 79409 | GD-RAPPING MECHANISM        | 7192.988         |
| 6     | 79410 | GD_DRIVE ARRANGEMENT        | 461.956          |
| 7     | 79411 | GAS SCREEN-EP               | 8631.86          |
| 8     | 79413 | EMIT SYST SUSPENSION        | 8802.248         |
| 9     | 79414 | SUPPORT INSULATORS          | 8576             |
| 10    | 79415 | EMITTING ELECTRODES         | 11248.89         |
| 11    | 79416 | EMIT ELECT RAPP MECH        | 19058.43         |
| 12    | 79417 | DRIVE ARGT. FOR EMIT.       | 16393.22         |
| 13    | 79419 | COL ELEC SUSPENSION         | 63553.18         |
| 14    | 79420 | COLLECTING ELECTRODE        | 525196.6         |
| 15    | 79421 | EMIT SYS FRAME-TOP          | 76596.12         |
| 16    | 79422 | EMIT SYS FRAME BOTOM        | 79768.01         |
| 17    | 79423 | INSPECTION DOORS            | 5963.936         |
| 18    | 79424 | SHOCK BARS                  | 41770.31         |
| 19    | 79425 | COLL ELECT RAPP MECH        | 52004.53         |
| 20    | 79426 | COLL ELEC RAPP DRIVE        | 3695.84          |
| 21    | 79428 | ESP ROOF BEAM               | 79266.62         |
| 22    | 79430 | ELECTRICAL SD COMPTS        | 4032             |
| 23    | 79431 | GEARED MOTORS FOR RAPP      | 7281.344         |
| 24    | 79432 | EMIT SYS FRAME-MIDDLE       | 78901.54         |
| 25    | 79437 | JUNCTION BOX & PUSH BU      | 1250             |
| 26    | 79442 | OUTER ROOF-EP               | 88418.24         |
| 27    | 79443 | HOPPER RIDGES               | 14297            |
| 28    | 79444 | HOPPER UPPER PART           | 44163.71         |
| 29    | 79445 | HOP MLD&LOWER PART          | 70409.89         |
| 30    | 79446 | INSULATOR SUPP PANEL        | 53603.32         |
| 31    | 79447 | ROOF PANEL ASSY             | 36860.14         |
| 32    | 79448 | CASING STRUCTURE            | 146607.1         |
| 33    | 79449 | CASING SHELL/PANEL          | 157165.048       |
| 34    | 79450 | INLET-OUTLET FUNNEL         | 80066.21         |
| 35    | 79451 | EXPANSION JOINTS            | 0                |
| 36    | 79452 | DUCTS BETWEEN APH & ESP     | 0                |
| 37    | 79453 | DUCTS BET ESP & ID FAN      | 4716.988         |
| 38    | 79454 | DUCTS BETWEEN IDFAN AN      | 0                |
| 39    | 79456 | RECTIFIER HANDL SYST        | 9526.746         |
| 40    | 79457 | SPLITTER&GUIDE VANES        | 10073.05         |
| 41    | 79459 | CONTROL ROOM-INSERTS        | 28128            |
| 42    | 79460 | CABLE-CABLE RACKS           | 39058            |
| 43    | 79461 | EP PERF TEST EQUIPT         | 268.752          |
| 44    | 79462 | CABLE TRAY AND FLEXIBL      | 53722.8          |

|                           |       |                           |                    |
|---------------------------|-------|---------------------------|--------------------|
| 45                        | 79463 | ASH LEVEL INDICATOR       | 1227.128           |
| 46                        | 79464 | MISCELLANEOUS ITEMS       | 27050.6            |
| 47                        | 79465 | APP PLATFORM-HOPPER       | 18836.18           |
| 48                        | 79466 | WATER WASHING SYSTEM      | 3230.263           |
| 49                        | 79467 | MIN WOOL FOR ESP INSUL    | 78300              |
| 50                        | 79468 | FIXING COMP. FOR ESP      | 19393.36           |
| 51                        | 79469 | MINERAL WOOL FOR DUCT     | 14790              |
| 52                        | 79470 | FIXING COMP FOR DUCT      | 5943.81            |
| 53                        | 79472 | INTERLOCKS-EP             | 462.4              |
| 54                        | 79476 | RECTIFIRS&CONTRLS-EP      | 43844              |
| 55                        | 79477 | LT SWITCH BOARD/ESP SW    | 18213              |
| 56                        | 79478 | BAPCON & ACCESSORIES      | 273.5              |
| 57                        | 79480 | FOUNDATION MATLS FOR E    | 2310.3             |
| 58                        | 79481 | SUPPOTING STRUCTURES F    | 47293.79           |
| 59                        | 79482 | SUPP STRU FOR DUCTS AP    | 0                  |
| 60                        | 79483 | SUPP STRU FOR DUCT ESP    | 2518.812           |
| 61                        | 79484 | DUCT SUPP BET ID AND C    | 3907.1             |
| 62                        | 79485 | DUCT SUPPORTS             | 0                  |
| 63                        | 79486 | ACCESS DOOR AND PLATFO    | 7938.093           |
| 64                        | 79490 | HEATING ELEMENTS          | 1198               |
| 65                        | 79492 | AUXILIARY CONTROL PANEL   | 18001              |
| 66                        | 79797 | ARECA CONTROLER           | 33                 |
| 67                        | 79988 | COMMISSIONING SPARES      | 644.332            |
| 68                        | 79996 | TOOLS & TACKLES           | 215.172            |
| 69                        | 89610 | EP GALLERIES&STAIRS       | 26358.15           |
| 70                        | 89611 | ESP ROOF HANDRAILS        | 5751.144           |
| 71                        | 89612 | FLOOR GRILL AND STEP T    | 14477.24           |
| 72                        | 89613 | FLOOR GRILL AND MOBILE    | 13478.67           |
| 73                        | 89615 | INSULATION CLADDING SHEET | 16128              |
| 74                        | DM999 | DAMPER MECH SPARES        | 0                  |
| 75                        | DM999 | DAMPER MECH SPARES        | 0                  |
| 76                        | DM999 | DAMPER MECH SPARES        | 84.707             |
| 77                        | DC999 | DAMPER C&I SPARES         | 3895               |
| 78                        | DC999 | DAMPER C&I SPARES         | 1675               |
| 79                        | EC999 | ESP C&I SPARES            | 1932.201           |
| 80                        | EM999 | ESP MECH SPARES           | 1834.98            |
| 81                        | ----  | REUSABLE ITEMS            | 15551.212          |
| APPROX. TOTAL WEIGHT (KG) |       |                           | <b>2422000.000</b> |

TECHNICAL CONDITIONS OF CONTRACT VOL-II

CHAPTER-VIII ANNEXURES

Annexure-2

**Tentative weight for Renovation of ESP package at NTPC Singrauli TPS  
Unit No.-01, Stage-I (5 X 200 MW)**

| SL NO | PGMA  | Description                 | Tentative WT(KG) |
|-------|-------|-----------------------------|------------------|
| 1     | 79401 | ROLL/SLIDE SUPPORTS         | 3600.000         |
| 2     | 79405 | ESP-SUB-DELIVERY COMPONENTS | 291.980          |
| 3     | 79406 | INSULATOR HOUSING ASSEMBLY  | 28226.116        |
| 4     | 79408 | GAS DIST. ASSY              | 37561.144        |
| 5     | 79409 | GD-RAPPING MECHANISM        | 7192.988         |
| 6     | 79410 | GD_DRIVE ARRANGEMENT        | 461.956          |
| 7     | 79411 | GAS SCREEN-EP               | 8631.860         |
| 8     | 79413 | EMIT SYST SUSPENSION        | 8802.248         |
| 9     | 79414 | SUPPORT INSULATORS          | 8576.000         |
| 10    | 79415 | EMITTING ELECTRODES         | 11248.888        |
| 11    | 79416 | EMIT ELECT RAPP MECH        | 19058.432        |
| 12    | 79417 | DRIVE ARGT. FOR EMIT.       | 16393.220        |
| 13    | 79419 | COL ELEC SUSPENSION         | 63553.182        |
| 14    | 79420 | COLLECTING ELECTRODE        | 525196.580       |
| 15    | 79421 | EMIT SYS FRAME-TOP          | 76596.120        |
| 16    | 79422 | EMIT SYS FRAME BOTOM        | 79768.006        |
| 17    | 79423 | INSPECTION DOORS            | 5963.936         |
| 18    | 79424 | SHOCK BARS                  | 41770.307        |
| 19    | 79425 | COLL ELECT RAPP MECH        | 52004.532        |
| 20    | 79426 | COLL ELEC RAPP DRIVE        | 3695.840         |
| 21    | 79428 | ESP ROOF BEAM               | 79266.624        |
| 22    | 79430 | ELECTRICAL SD COMPTS        | 4032.000         |
| 23    | 79431 | GEARED MOTORS FOR RAPP      | 7281.344         |
| 24    | 79432 | EMIT SYS FRAME-MIDLE        | 78901.538        |
| 25    | 79437 | JUNCTION BOX & PUSH BU      | 1250.000         |
| 26    | 79442 | OUTER ROOF-EP               | 88418.238        |
| 27    | 79443 | HOPPER RIDGES               | 14296.998        |
| 28    | 79444 | HOPPER UPPER PART           | 44163.712        |
| 29    | 79445 | HOP MLD&LOWER PART          | 70409.892        |
| 30    | 79446 | INSULATOR SUPP PANEL        | 53603.320        |
| 31    | 79447 | ROOF PANEL ASSY             | 36860.137        |
| 32    | 79448 | CASING STRUCTURE            | 169327.920       |
| 33    | 79449 | CASING SHELL/PANEL          | 163489.088       |
| 34    | 79450 | INLET-OUTLET FUNNEL         | 80066.212        |
| 35    | 79451 | EXPANSION JOINTS            | 2080.615         |
| 36    | 79452 | DUCTS BETWEEN APH & ESP     | 34981.71         |
| 37    | 79453 | DUCTS BET ESP & ID FAN      | 4716.988         |
| 38    | 79454 | DUCTS BETWEEN IDFAN AN      | 9151.877         |
| 39    | 79456 | RECTIFIER HANDL SYST        | 9526.746         |
| 40    | 79457 | SPLITTER&GUIDE VANES        | 10073.048        |
| 41    | 79459 | CONTROL ROOM-INSERTS        | 28128.000        |
| 42    | 79460 | CABLE-CABLE RACKS           | 39058.000        |
| 43    | 79461 | EP PERF TEST EQUIPT         | 268.752          |

|                           |       |                           |                    |
|---------------------------|-------|---------------------------|--------------------|
| 44                        | 79462 | CABLE TRAY AND FLEXIBL    | 53722.800          |
| 45                        | 79463 | ASH LEVEL INDICATOR       | 1227.128           |
| 46                        | 79464 | MISCELLANEOUS ITEMS       | 27050.600          |
| 47                        | 79465 | APP PLATFORM-HOPPER       | 18836.184          |
| 48                        | 79466 | WATER WASHING SYSTEM      | 3230.263           |
| 49                        | 79467 | MIN WOOL FOR ESP INSUL    | 78300.000          |
| 50                        | 79468 | FIXING COMP. FOR ESP      | 19393.360          |
| 51                        | 79469 | MINERAL WOOL FOR DUCT     | 14790.000          |
| 52                        | 79470 | FIXING COMP FOR DUCT      | 5943.810           |
| 53                        | 79472 | INTERLOCKS-EP             | 462.400            |
| 54                        | 79476 | RECTIFIRS&CONTRLS-EP      | 43844.000          |
| 55                        | 79477 | LT SWITCH BOARD/ESP SW    | 18213.000          |
| 56                        | 79478 | BAPCON & ACCESSORIES      | 273.500            |
| 57                        | 79480 | FOUNDATION MATLS FOR E    | 2310.300           |
| 58                        | 79481 | SUPPOTING STRUCTURES F    | 66103.894          |
| 59                        | 79482 | SUPP STRU FOR DUCTS AP    | 11062.62           |
| 60                        | 79483 | SUPP STRU FOR DUCT ESP    | 2518.812           |
| 61                        | 79484 | DUCT SUPP BET ID AND C    | 3907.100           |
| 62                        | 79485 | DUCT SUPPORTS             | 4635.836           |
| 63                        | 79486 | ACCESS DOOR AND PLATFO    | 7938.093           |
| 64                        | 79490 | HEATING ELEMENTS          | 1198.000           |
| 65                        | 79492 | AUXILIARY CONTROL PANEL   | 18001.000          |
| 66                        | 79797 | ARECA CONTROLER           | 33.000             |
| 67                        | 79988 | COMMISSIONING SPARES      | 644.332            |
| 68                        | 79996 | TOOLS & TACKLES           | 215.172            |
| 69                        | 89610 | EP GALLERIES&STAIRS       | 26358.150          |
| 70                        | 89611 | ESP ROOF HANDRAILS        | 5751.144           |
| 71                        | 89612 | FLOOR GRILL AND STEP T    | 14477.244          |
| 72                        | 89613 | FLOOR GRILL AND MOBILE    | 13478.672          |
| 73                        | 89615 | INSULATION CLADDING SHEET | 16128.000          |
| 74                        | DM999 | DAMPER MECH SPARES        | 17595.992          |
| 75                        | DM999 | DAMPER MECH SPARES        | 17595.992          |
| 76                        | DM999 | DAMPER MECH SPARES        | 84.707             |
| 77                        | DC999 | DAMPER C&I SPARES         | 3895.000           |
| 78                        | DC999 | DAMPER C&I SPARES         | 1675.000           |
| 79                        | EC999 | ESP C&I SPARES            | 1932.201           |
| 80                        | EM999 | ESP MECH SPARES           | 1834.980           |
| 81                        | ----  | REUSABLE ITEMS            | 90311.690          |
| APPROX. TOTAL WEIGHT (KG) |       |                           | <b>2643000.000</b> |

TECHNICAL CONDITIONS OF CONTRACT VOL-II  
CHAPTER-VIII: ANNEXURES

**TENTATIVE BOQ FOR ILLUMINATION PACKAGE FOR ESP AREA  
SINGRAULI TPS STAGE-I (FOR UNIT NO.- 1&5 OF 5X200 MW)Annexure -3**

| S. No. | Description   | Qty.  | Unit No.- 05 | Unit No.- 01 |
|--------|---|-------|--------------|--------------|
| 1      | 70/100/150W Well Glass Lighting Fixture<br>Philips / Reputed HPSV                           | Nos.  | 75           | 75           |
| 2      | 2X28W Lighting Fixture<br>Philips / Reputed   | Nos.  | 25           | 25           |
| 3      | Lighting Panel<br>Normal AC / Emergency / DC Supply Panels                                  | Nos.  | 6            | 6            |
| 4      | 63A, 415V, 5 pin & 20A, 230V, 3 Pin Industrial Receptacle                                   | Nos.  | 8            | 8            |
| 5      | J 'Type' Pole (3.5 Mtrs.) with Junction Box with Hardware                                   | Nos.  | 30           | 30           |
| 6      | Junction Box with termination Glands, Lugs etc.   | Nos.  | 25           | 25           |
| 7      | Stranded Flexible 2.5 / 4 sq. mm. Cu, PVC, FRLS Wire  | Mtrs. | 7500         | 7500         |
| 8      | Hot Dip GI Conduit Heavy Duty – 20/25 mm Dia. 2mm Thick with Accessories with GI earth wire | Mtrs. | 2500         | 2500         |
| 9      | 4CX25/35 sq. mm. AL, PVC, FRLS Armoured Cable   | Mtrs. | 500          | 500          |
| 10     | Lighting Transformer approx. 100 KVA  | Nos.  | 2            | 2            |

NOTE: These Items and quantities are tentative and may vary as per site requirement.

TECHNICAL CONDITIONS OF CONTRACT VOL-II

CHAPTER-VIII: ANNEXURES

Annexure –4

**INDICATIVE LIST OF MANPOWER TO BE PROVIDED BY CONTRACTOR FOR EXECUTION OF TENDERED WORKS FOR MOST DURATION OF THE CONTRACT UNLESS OTHERWISE SPECIFIED**

| I  | GENERAL MANPOWER             | Unit-05 (Nos.) | Unit-01 (Nos.) |
|----|------------------------------|----------------|----------------|
| 1  | Site In charge               | 1              | 1              |
| 2  | Engineer                     | 1              | 1              |
| 3  | Supervisor                   | 8              | 8              |
| 4  | Safety/Quality officer       | 2              | 2              |
| 5  | Office Assistant             | 2              | 2              |
| 6  | Computer Operator            | 1              | 1              |
| 7  | Accountant                   | 1              | 1              |
| 8  | Store Keeper/ Time Keeper    | 2              | 2              |
| 9  | Foreman                      | 4              | 4              |
| 10 | EP Internal Fitter           | 4              | 4              |
| 11 | Structural Fitter            | 3              | 3              |
| 12 | Pipe Fitter                  | 1              | 1              |
| 13 | Junior Fitter                | 3              | 3              |
| 14 | Sheet Fabricator             | 1              | 1              |
| 15 | Structural Welder/LP Welder  | 10             | 10             |
| 16 | Electrician                  | 2              | 2              |
| 17 | Junior Electrician           | 1              | 1              |
| 18 | Gas Cutter                   | 6              | 6              |
| 19 | Grinder Man                  | 2              | 2              |
| 20 | Sarang                       | 5              | 5              |
| 21 | Rigger                       | 20             | 20             |
| 22 | Helper                       | 35             | 35             |
| 23 | Lagger                       | 7              | 7              |
| 24 | Painter                      | 1              | 1              |
| 25 | Hydra/Crane/Trailer Operator | 9              | 9              |
| 26 | Security Guards              | 3              | 3              |
|    | Total                        | <b>135</b>     | <b>135</b>     |

The above list is only tentative and does not list out each and every item or grade of manpower or the quantity thereof. The Sub-contractor has to deploy all Manpower **ON THREE SHIFT BASIS** to complete the entire scope of work. The deployment of manpower shall be as per site requirement.

TECHNICAL CONDITIONS OF CONTRACT VOL-II

CHAPTER-VIII: ANNEXURES

Annexure-5

**INDICATIVE LIST OF MAJOR T&P AND IMTE'S TO BE PROVIDED BY CONTRACTOR FOR EXECUTION OF TENDERED WORKS PER UNIT FOR MOST DURATION OF THE CONTRACT UNLESS OTHERWISE SPECIFIED**

| SL. No.   | T&Ps, MMDs, Consumables & Other Materials                       | Quantity/<br>Unit No.- 05          | Quantity/<br>Unit No.- 01          |
|---|---|------------------------------------|------------------------------------|
| 1   | Tower crane 6 MT and above                                      | 01 No. ( till completion of work ) | 01 No. ( till completion of work ) |
| 2   | Crane, Tire mounted telescopic boom hydraulic crane (90/100 MT) | 01 No. ( till completion of work ) | 01 No. ( till completion of work ) |
| 3   | Hydra Crane (14/12T)  | 3                                  | 3                                  |
| 4   | Tractor & Trailer 15/20T  | 2                                  | 2                                  |
| 5   | Electric Winch 15T/10T/5T                                       | 4                                  | 4                                  |
| 6   | Hydraulic Jacks 100T/50T/25T                                    | 1                                  | 1                                  |
| 7   | Cutting torch   | 10                                 | 10                                 |
| 8   | Scaffolding Materials Steel                                     | 1000                               | 1000                               |
| 9   | Torq wrench   | 2                                  | 2                                  |
| 10  | Wooden planks   | 200                                | 200                                |
| 11  | Pistol drilling machine   | 1                                  | 1                                  |
| 12  | Column Alignment Checking Device                                | 2                                  | 2                                  |
| 13  | Chain Pulley Block – 10T/5T/3T                                  | As required                        | As required                        |
| 14  | Master Level – 0.02 mm/m  | As required                        | As required                        |
| 15  | Spirit Level  | As required                        | As required                        |
| 16  | Water Level   | As required                        | As required                        |
| 17  | Piano Wire  | As required                        | As required                        |
| 18  | Set of Spanners up to 90 mm                                     | As required                        | As required                        |
| 19  | Welding Electrodes & Filler Wires                               | As required                        | As required                        |
| 20  | DA, Oxygen, Argon Gas   | As required                        | As required                        |
| 21  | DPT Kits  | As required                        | As required                        |
| 22  | Drilling Machines   | As required                        | As required                        |
| 23  | D-shackles, Slings, Huck-chucks etc.                            | As required                        | As required                        |
| 24  | 5KVA Motorized Meggar/electrical testing instruments/equipments | As required                        | As required                        |
| 25  | Other T&Ps, MMDs , Consumables & Materials                      | As required                        | As required                        |
| 26  | Tong Tester 10, 20 or 50 Amp + / - 3 % Accuracy.                | As required                        | As required                        |
| 27  | Digital and Analogue Millimeters                                | As required                        | As required                        |
| 28  | U Tube Manometer 0-2000 mm Water Column                         | As required                        | As required                        |
| 29  | Inclined Manometer 0-50 mm Water Column                         | As required                        | As required                        |
| 30  | Digital Clamp Meter - 225                                       | As required                        | As required                        |
| DURATION OF DEPLOYMENT OF THE ITEMS MENTIONED SHALL BE AS PER THE SCOPE OF REQUIREMENT. |   |                                    |                                    |

**Note:**

- The subcontractor shall arrange, at his own cost, fuel and other consumables for the operation of the Cranes. The operators and helpers for cranes/tractor shall be provided by sub-contractor free of cost. The sub-contractors shall ensure that the cranes are in good working condition and carry out day to day maintenance of Cranes as per manufacturer's maintenance schedule at his cost. The supervision and labour required for maintenance of cranes shall be arranged by sub-contractor free of cost. For cranes, replacement of filter and repair of batteries, self, dynamo shall be the responsibility of the subcontractor.
- The above list is only tentative and does not list out each and every item or grade of manpower or the quantity thereof. The Sub-contractor has to deploy all Manpower, T&Ps, MMDs, Consumables and other materials **ON THREE SHIFT BASIS** to complete the entire scope of work. The deployment of cranes shall be as per site requirement.
- MEASURING AND MONITORING DEVICES (MMD):**As per requirement to be finalized at site.
- 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 arrange 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 to be provided by the bidders at their cost. No separate payment shall be made for this contingency.
- 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.All the T&Ps required for this scope of work are to be arranged by the contractor within the quoted rates.

**SPECIFICATION OF PAINTING WORK**

|     |  |
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| 1.0 | The following Indian Standards may be referred to for carrying out the painting job: IS - 1303, 2379, 1477, 2524, 2395, 2338, 6278, 3140, 158, 2074, 104, and 2932.  |
| 2.0 | All surfaces to be painted shall be thoroughly cleaned of all grease, oil, loose mill scale, dust, rust and any other foreign matter by mechanical cleaning with power tool, scrapping with steel wire brushes, and sand scrapping with wire brush/emery paper as per requirement. Cleaning with solvents shall be adopted only after approval of the customer.  |
| 3.0 | After the surface is prepared, one coat of Zinc Phosphate primer conforming to IS: 2074 shall be applied. After first coat is dried up completely, second coat of red oxide primer shall be applied by brushing to ensure continuous film. The <b>dry film thickness</b> of each coat shall be <b>minimum 25 microns</b> .   |
| 4.0 | Synthetic enamel paint conforming to IS: 2932 shall be used for finish coats. The color/ shade shall be as approved by the customer. After cleaning the dust on the dried up primer, first coat of synthetic enamel shall be applied. After this first coat dries up hard, the surface should be wet scrubbed cutting down to smooth finish and ensuring that at no place the first coat is completely removed. After applying second coat, allowing the water to get evaporated completely, third finish coat of painting shall be applied. |
| 5.0 | For all electrical equipment, powder coating shall be done as per the relevant standard.   |
| 6.0 | Painting and Marking/Labeling of the materials erected. Arrangement of paints is included in the Scope of Work of the Contractor within quoted rate.   |

**TERMINAL POINTS**

**TERMINAL POINTS:**

The terminal points of the equipment and accessories offered under this specification shall be as follows:

- Air heater outlet.
- Inlet of expansion joints at ID fan(s) inlet.

**Pradhan Mantri Kaushal Vikas Yojna**

In order to give phillip to PradhanMantriKaushalVikasYojna:

"The contractor shall, at all stages of work deploy skilled/semi-skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute/ Industrial Training Institute/ National Institute of Construction Management and Research (NICMAR), National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/ certified by State/ Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/ semi-skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer-in-Charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate of Rs. 100 per such tradesman per day. Decision of Engineer-in-Charge as to whether particulartradesman possesses requisite skill and amount of compensation in case of default shall be final and binding.