

## **E-TENDER SPECIFICATION**

<b>Sl. No</b>	<b>E-Tender Specification Number</b>
<b>1</b>	<b>BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911</b>

**Package Description:** Erection, Alignment, Bolting/Welding, Roofing & Cladding Work, supply of all Material (As per TCC and BOQ), Consumables, labour, tools and plants, Supply and application of touchup painting as and wherever required including Handling of Materials at BHEL / Client's Stores / Storage yard and transportation of

1. **Package-A:** Erection of Power House Unit 1 & 2 (incl CCR) structure and other mics. buildings including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.
2. **Package-B:** Erection of Ash Handling Plant structure, FGD Structure, Tank fabrication & installation and other mics. building Structure including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.
3. **Package-C:** Erection of Coal Handling Plant structure and other mics. building Structure including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.

### **VOLUME I – TECHNICAL BID**

#### **THIS TENDER SPECIFICATION CONSISTS OF:**

<b>Notice Inviting Tender</b>	
<b>Volume-IA</b>	<b>Technical Conditions of Contract</b>
<b>Volume-IB</b>	<b>Special conditions of Contract</b>
<b>Volume-IC</b>	<b>General conditions of Contract</b>
<b>Volume-ID</b>	<b>Forms &amp; Procedures</b>
<b>Volume-IE</b>	<b>Technical Specifications</b>
<b>Volume II</b>	<b>Price Bid</b>

**Bharat Heavy Electricals Limited**



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

CONTENTS		
Volume No	Description	Hosted in website bhel.com (Briefly) and detailed in BHEL e-Procurement Portal as files titled
NIL	Tender Specification Issue Details	(Part of <b><u>Vol-IA-2911</u></b> )
NIL	Notice Inviting Tender	(Part of <b><u>Vol-IA-2911</u></b> )
I-A	Technical Conditions of Contract	Vol-I-A-2911
I-B	Special Conditions of Contract	Vol-I-BCD-2911
I-C	General Conditions of Contract	(Part of Vol-I-BCD-2911)
I-D	Forms & Procedures	(Part of Vol-I-BCD-2911)
IE	Technical Specifications	Vol-I-E-2911
II	Price Bid Specification as specified in E-Procurement Portal	Volume-II-2911

## EE-TENDER SPECIFICATION

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1	<b>BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911</b>

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EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR                      Refer Notice Inviting Tender  
TENDER SUBMISSION

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

M/s. ....

.....

PLEASE NOTE:  
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

**GM (Purchase)**

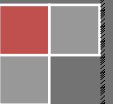
Place: Nagpur

Date:

2911

# NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



**BHEL PSWR**  
**Notice Inviting Tender**

E-Tender Specification No: BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911

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Ref: BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911

Date: 06/02/2024

**NOTICE INVITING E-TENDER (NIT)**

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

To,

Dear Sir/Madam,

**Sub : NOTICE INVITING E-TENDER**

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

**1.0 Salient Features of NIT**

S No.	ISSUE	DESCRIPTION
i	E-TENDER NUMBER	BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911
ii	Broad Scope of job	<p><b>Package Description:</b> Erection, Alignment, Bolting/Welding, Roofing &amp; Cladding Work, supply of all Material (As per TCC and BOQ), Consumables, labour, tools and plants, Supply and application of touchup painting as and wherever required including Handling of Materials at BHEL / Client's Stores / Storage yard and transportation of</p> <ol style="list-style-type: none"><li><b>Package-A:</b> Erection of Power House Unit 1 &amp; 2 (incl CCR) structure and other mics. buildings including supply &amp; installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.</li><li><b>Package-B:</b> Erection of Ash Handling Plant structure, FGD Structure, Tank fabrication &amp; installation and other mics. building Structure including supply &amp; installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.</li><li><b>Package-C:</b> Erection of Coal Handling Plant structure and other mics. building Structure including supply &amp; installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.</li></ol>
iii	DETAILS OF TENDER DOCUMENT	
A	Volume-IA	Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc
B	Volume-IB	Special Conditions of Contract (SCC)
C	Volume-IC	General Conditions of Contract (GCC)
D	Volume-ID	Forms and Procedures
E	Volume-IE	Technical Specifications
F	Volume-II	Price Bid as specified in E-Procurement Portal
iv	Issue of Tender Documents	<p><b>Tender documents will be available for downloading from BHEL website (<a href="http://www.bhel.com">www.bhel.com</a>) or e-procurement portal (<a href="https://eprocurebhel.co.in">https://eprocurebhel.co.in</a>) as per schedule below:</b></p> <p><b>Start :06/02/2024 , Time :18:00</b> <b>Closes : 27/02/2024 , Time : 13:00</b></p> <p>Brief information of the tenders shall also be available at central public procurement portal. (<a href="https://eprocure.gov.in/epublish/app">https://eprocure.gov.in/epublish/app</a>)</p>

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S No.	ISSUE	DESCRIPTION	
v	DUE DATE & TIME OF OFFER SUBMISSION	<p><b>Date: 27/02/2024, Time: 13.00 Hrs</b></p> <ul style="list-style-type: none"> <li>Place: on <b>E-Tender Portal</b> <a href="https://eprocurebhel.co.in">https://eprocurebhel.co.in</a></li> </ul>	Applicable
vi	OPENING OF TENDER (Techno-Commercial Bid)	<p><b>Date: 27/02/2024, Time: 17.00 Hrs</b></p> <p>Notes:</p> <p>(1) In case the due date of opening of tender becomes a non-working day, then the due date &amp; time of offer submission and opening of tenders get extended to the next working day.</p> <p>(2) Bidder may depute representative to witness the opening of tender. For e-Tender, Bidder may witness the opening of tender through e-Procurement portal only.</p>	Applicable
vii	EMD AMOUNT	<p><b>Rs 50,00,000/- (Rupees Fifty Lakh Only)</b></p> <p><b>Important Note: Bidders kindly to take note that EMD (Earnest Money Deposit) shall be furnished by MSE bidders as well, as per the amount and procedure indicated in the NT/GCC.</b></p>	Applicable
viii	COST OF TENDER	Free	
ix	LAST DATE FOR SEEKING CLARIFICATION	<p>One day before due date of offer submission. Along with soft version also, addressing to undersigned &amp; to others as per contact address given below:</p> <p>1) Name: Vivek nand Jha Designation: Manager Deptt: Purchase Address: Floor no. 5 &amp; 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Mobile-9429198214 Email : <a href="mailto:vivekjha@bhel.in">vivekjha@bhel.in</a></p> <p>2) Mr. Kamlesh Kumar Designation: DGM Deptt: Purchase Address: Floor no. 5 &amp; 6, Shree Mohini Complex, 345 Kingsway, Nagpur-440001 Email: <a href="mailto:kamleshbhel@bhel.in">kamleshbhel@bhel.in</a> Mob: 9425554615</p>	Applicable
x	SCHEDULE OF Pre Bid Discussion (PBD)	<p><a href="https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZDA4ZTY4ZjEtNzk3ZS00ZjMwLTkyYmEtMTY4ZWUxYjhjZDg3%40thread.v2/0?context=%7b%22Tid%22%3a%22b5fad749-aea2-4c55-a02b-fdbd7bcf8a8c%22%2c%22Oid%22%3a%22ac46f857-62f1-4af2-b750-f24aa8a01f7c%22%7d">https://teams.microsoft.com/l/meetup-join/19%3ameeting_ZDA4ZTY4ZjEtNzk3ZS00ZjMwLTkyYmEtMTY4ZWUxYjhjZDg3%40thread.v2/0?context=%7b%22Tid%22%3a%22b5fad749-aea2-4c55-a02b-fdbd7bcf8a8c%22%2c%22Oid%22%3a%22ac46f857-62f1-4af2-b750-f24aa8a01f7c%22%7d</a></p> <p><b>Dtae 13/02/2024, Time 11:00 to 13:00</b></p>	Applicable
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)	<p>1) Shri Otem Dai, IAS (Retd.) 2) Shri Bishwamitra Pandey, IRAS (Retd.) 3) Shri Mukesh Mittal, IRS (Retd.)</p>	Applicable

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

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

3.0 Not Used

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

For Electronic Fund Transfer the details are as below:-

NAME OF THE BENEFICIARY	BHARAT HEAVY ELECTRICALS LTD
ADDRESS OF THE COMPANY	5 <sup>th</sup> Floor, SHREE MOHINI COMPLEX 345, KINGSWAY,NAGPUR
NAME OF BANK	STATE BANK OF INDIA
NAME OF BANK BRANCH AND BRANCH CODE	SBI,NAGPUR MAIN BRANCH ,CODE-00432
CITY	NAGPUR
ACCOUNT NUMBER	40227423158
ACCOUNT TYPE	MC-C C Clean (C&I)
IFSC CODE OF THE BENEFICIARY BANK BRANCH	SBIN0000432
MICR CODE OF THE BANK BRANCH	440002002

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

**5.0 Procedure for Submission of Tenders:**

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

**Documents Comprising the e-Tender**

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

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

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

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

**b. Price Bid:**

- i. Prices are to be quoted in the attached Price Bid format online on e-tender portal.
- ii. The price should be quoted for the accounting unit indicated in the e-tender document.

**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.
- 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.
- A tender, which does not fulfil any of the above requirements and/or gives evasive information/reply against any such requirement, shall be liable to be ignored and rejected.

**DO NOT'S**

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

**Digital Signing of e-Tender**

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

**The Requirement:**

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

BHEL has finalized the e-procurement service Provider:-

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

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

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

**0120-4001 002**

**0120-4200 462**

**0120-4001 005**

**0120-6277 787**

**1. Peter Raj, NIC, Ph: 9942069052**

**Email Support: [support-eproc@nic.in](mailto:support-eproc@nic.in)**



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

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

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

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

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

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

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

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

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	It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact ph. no, FAX no, etc.	
iv.——	All Amendments/Correspondences/Corrigenda/Clarifications/Changes/Errata etc. pertinent to this NIT.	
v.——	Integrity Pact Agreement (Duly signed by the authorized signatory)	If applicable
vi.——	Duly filled-in annexures, formats etc. as required under this Tender Specification/NIT	
vii.——	Notice inviting Tender (NIT)	
viii.——	Volume – I A : <u>Technical</u> Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc.	
ix.——	Volume – I B : Special Conditions of Contract (SCC)	
x.——	Volume – I C : General Conditions of Contract (GCC)	
xi.——	Volume – I D : Forms & Procedures	
xii.——	Volume – II (UNPRICED – without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item	
xiii.——	Any other details preferred by bidder with proper indexing.	

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

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

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	<b>OUTER COVER</b>	
	<b>ENVELOPE-IV (MAIN ENVELOPE / OUTER ENVELOPE)</b> superscribed as: TECHNO-COMMERCIAL BID, PRICE BID & EMD TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION:	
	<b>CONTAINING THE FOLLOWING:</b>	
i	<ul style="list-style-type: none"><li>○ Envelopes I</li><li>○ Envelopes II</li><li>○ Envelopes III</li></ul>	

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

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

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

**9.0 Assessment of Capacity of Bidders:**

**Bidder's capacity for executing the job under tender shall be assessed based on its 'LOAD and PERFORMANCE' and 'AVERAGE ANNUAL TURNOVER', 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:

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(**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)  $P_1, P_2, P_3, P_4, P_5, \dots, P_N$  etc. be the packages (under execution/ executed during the 'Period of Assessment' in all Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions =  $P_T$  (i.e.  $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$ )
- b) Number of Months ' $T_1$ ' for which 'Monthly Performance Evaluation' as per relevant formats, should have been done in the 'Period of Assessment' for the corresponding similar package  $P_1$ . Similarly  $T_2$  for package  $P_2, T_3$  for package  $P_3$ , etc. for the tendered scope. Now calculate cumulative total months ' $T_T$ ' for total similar Packages ' $P_T$ ' for all Regions (i.e.  $T_T = T_1 + T_2 + T_3 + T_4 + \dots + T_N$ )
- c) Sum ' $S_1$ ' of 'Monthly Performance Evaluation' Scores ( $S_{1-1}, S_{1-2}, S_{1-3}, S_{1-4}, S_{1-5} \dots S_{1-T_1}$ ) for similar package  $P_1$ , for the 'period of assessment' ' $T_1$ ' (i.e.  $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots + S_{1-T_1}$ ). Similarly,  $S_2$  for package  $P_2$  for period  $T_2$ ,  $S_3$  for package  $P_3$  for period  $T_3$  etc. for the tendered scope for all Regions. Now calculate cumulative sum ' $S_T$ ' of 'Monthly Performance Evaluation' Scores for total similar Packages ' $P_T$ ' for all Regions (i.e. ' $S_T = S_1 + S_2 + S_3 + S_4 + S_5 + \dots + S_N$ ')
- d) **Overall Performance Rating ' $R_{BHEL}$ ' for the Similar Package/Packages** (under execution/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL

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

- 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

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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> 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> , S <sub>1-2</sub> , S <sub>1-3</sub> , S <sub>1-4</sub> , ... S <sub>1-T1</sub>	S <sub>2-1</sub> , S <sub>2-2</sub> , S <sub>2-3</sub> , S <sub>2-4</sub> , ... S <sub>2-T2</sub>	S <sub>3-1</sub> , S <sub>3-2</sub> , S <sub>3-3</sub> , S <sub>3-4</sub> , ... S <sub>3-T3</sub>	S <sub>4-1</sub> , S <sub>4-2</sub> , S <sub>4-3</sub> , S <sub>4-4</sub> , ... S <sub>4-T4</sub>	S <sub>5-1</sub> , S <sub>5-2</sub> , S <sub>5-3</sub> , S <sub>5-4</sub> , ... S <sub>5-T5</sub>	.. ... ... ... ... ...	S <sub>N-1</sub> , S <sub>N-2</sub> , S <sub>N-3</sub> , S <sub>N-4</sub> , ... S <sub>N-TN</sub>	-----
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 (Σ) 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

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:

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Sl. no.	Overall Performance Rating ( $R_{BHEL}$ )	Corresponding Value of 'L'
1	=60	NA
2	> 60 and $\leq 65$	0.5
3	> 65 and $\leq 70$	0.45
4	> 70 and $\leq 75$	0.4
5	> 75 and $\leq 80$	0.375
6	> 80 and < 90	0.35
7	$\geq 90$	0.33

- iv). **Performance Systems:** The performance rating as mentioned in II (i) and (ii) above, shall be calculated as per Online Systems i.e. Contractor Performance Evaluation System (CPES) and Safety Performance Evaluation System (HSEPES). The scores assigned in HSEPES shall be scaled down to 10 and assigned in CPES against the category "HSE" (mentioned in Form F-15).

**III. i) 'Assessment of Capacity based on 'LOAD and PERFORMANCE':**

- a) 'Assessment of Capacity of Bidder' is based on the Maximum number of packages for which a vendor is eligible, considering the performance scores of similar packages, as below:  
Max number of packages  $P_{Max} = (R_{BHEL} - 60)$  divided by corresponding value of 'L', i.e.  $(R_{BHEL} - 60)/L$

**Note:**

- i). In case the value of  $P_{Max}$  results in a fraction, the value of  $P_{Max}$  is to be rounded off to next whole number
- ii). For  $R_{BHEL} = 60$ ,  $P_{Max} = '1'$

The Bidder shall be considered 'Qualified' on 'Performance basis' as per 'Assessment of Capacity of Bidder' for the subject Tender if  $P \leq P_{Max}$   
(Where P is calculated as per clause 'I' above)

- b) In addition to above, in case contractor fails to score 5 or more than 5 (five) marks in the scaled down scores of HSEPES for "3 or more than 3 months in a period of 6 months preceding and including the cut-off month in any single package", the contractor shall be considered disqualified for ongoing tender(s) of BHEL. Qualification of bidder for further tendering process shall be subject to qualifying this condition in addition to qualifying requirements mentioned in PQR. Bidders who did not qualify this condition shall not be considered under the provisions of clause 9 IV (iv) of NIT.

**ii) Assessment of Capacity based on 'AVERAGE ANNUAL TURNOVER':**

If the 'value of contracts in hand' across all PS Regions by a contractor is less than the product of "annual average turnover of the Contractor and multiplying factor", then such bidder shall be considered qualified on 'Annual Average Turnover basis'. The 'value of contracts in hand' will be computed by summing up "50% of the annualized awarded value of each contract" unless performance evaluation is not closed in the online CPES.

Based on the performance rating of the Contractor, the above mentioned multiplying factor shall be as below:

Sl. no.	Overall Performance Rating ( $R_{BHEL}$ )	(Multiplying factor to Average Annual Turnover)
1	$\geq 60$ and $\leq 70$	1

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2	> 70 and ≤ 80	2
3	> 80	3

**'Assessment of Capacity of Bidder':**

The bidder will be considered qualified for the tender if it qualifies on 'Load and Performance basis' as well as on 'Average Annual Turnover basis'.

However, 'New Vendor' / 'Consortium Partner' shall be considered qualified based on only 'Load and Performance' (they will be regarded pre-qualified on 'Average Annual Turnover' criteria).

**IV. Explanatory note:**

i). Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or C&I etc. at the individual level irrespective of rating of Plant and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, C&I, Civil, Structure etc. is considered individual level of package. For example, in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e. the 'identified packages as per Table-1 below), the 'PERFORMANCE' part against sl.no. II above, needs to be evaluated considering all the identified packages (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	
iii). Civil Works including foundations	iii). Others (Elect. and C&I)	ii). Power Cycle Piping/Critical Piping
iv). Structural Steel Fabrication & Erection	iv). Electrical Enabling Works	iii). ESP
v). Chimney		iv). LP Piping
vi). Cooling Tower		v). Steam Turbine Generator set & Aux
vii). Others (Civil)		vi). Gas Turbine Generator set & Aux
		vii). Hydro Turbine Generator set & Aux
		viii). Turbo Blower (including Steam Turbine)
		ix). Material Management

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		x). FGD xi). ACC xii). Others (Mechanical)
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- iii). Bidders who have not been evaluated for at least six package months in the last 24 months preceding and including the Cut-off month in the online BHEL system for contractor performance evaluation in BHEL PS Regions, shall be considered “NEW VENDOR”.

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

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

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

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

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

- iv). Consequent upon applying the criteria of ‘Assessment of Capacity of Bidders’ detailed above on all the bidders qualified against Technical and Financial Qualification criteria, if the number of qualified bidders reduces to less than four, then for further processing of the Tender, BHEL at its discretion reserves the right to also consider the bidders who are “not qualified” as per criteria of ‘Assessment of Capacity of Bidders’ and for this, procedure described in following three options shall be followed:

- a) All the bidders having Overall Performance Rating ( $R_{BHEL}$ )  $\geq 60$  shall be considered qualified against criteria of ‘Assessment of Capacity of Bidders’.
- b) If even after using option “a”, the number of qualified bidders remains less than four, then in addition to bidders considered as per option “a”, “First timer” bidders having average of available performance scores  $\geq 60$  upto and including the Cut Off month shall also be considered qualified against criteria of ‘Assessment of Capacity of Bidders’.
- c) If even after using option “a” and “b”, the number of qualified bidders remains less than four, then in addition to bidders considered as per option “a” and “b”, “First timer” bidders for whom no performance score is available in the system upto and including the Cut Off month, shall also be considered qualified against criteria of ‘Assessment of Capacity of Bidders’.

**Note:-** In case, the number of bidders qualified against Technical and Financial Qualification criteria itself is less than four, then all bidders (a)- having Overall Performance Rating ( $R_{BHEL}$ )  $\geq 60$ , (b)- “First timer” bidders having average of available performance scores  $\geq 60$  upto and



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including the Cut Off month, (c)- "First timer" bidders for whom no performance score is available in the system upto and including the Cut Off month, shall be considered qualified against criteria of 'Assessment of Capacity of Bidders' for further processing of tender.

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

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

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

vi). Contractor shall provide the latest contact details i.e. mail-ID and Correspondence Address to SCT Department, so that same can be entered in the Contractor Performance Evaluation System, and in case of any change/discrepancy same shall be 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 27<sup>th</sup> of Evaluation Month or 5 days after approval of score, whichever is later. However, acceptance/rejection of 'Review Request' solely depends on the discretion of GM Site/GM Project. After acceptance of Review Request, evaluation score shall be reviewed at site and the score after completion of review process shall be acceptable and binding on the contractor.

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

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

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

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

11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail and/or through e-procurement portal, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query

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received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

- 12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.
- 13.0 In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc. or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.
- 14.0 Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
- 15.0 Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**

**"Integrity Pact (IP)"**

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

Sl. No.	IEM	Email
1.	Shri Otem Dai, IAS (Retd.)	<a href="mailto:iem1@bhel.in">iem1@bhel.in</a>
2.	Shri Bishwamitra Pandey, IRAS (Retd.)	<a href="mailto:Iem2@bhel.in">Iem2@bhel.in</a>
3.	Shri Mukesh Mittal, IRS (Retd.)	<a href="mailto:Iem3@bhel.in">Iem3@bhel.in</a>

- (b) The IP as enclosed with the tender is to be submitted (duly signed by authorized signatory) along with techno-commercial bid (Part-I, in case of two/ three part bid). Only those bidders who have entered into such an IP with BHEL would be competent to participate in the bidding. In other words, entering into this Pact would be a preliminary qualification.
- (c) Please refer Section-8 of IP for Role and Responsibilities of IEMs. In case of any complaint arising out of the tendering process, the matter may be referred to any of the above IEM(s). All correspondence with the IEMs shall be done through email only.

**Note:**

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

Details of contact person(s):

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<b>Name:</b>	Viveka nand Jha/ Manager (Purchase)
<b>Dept:</b>	Purchase Department
<b>Address:</b>	Floor No. 5 & 6, Shreemohini Complex, 345 Kingsway, Nagpur-440001
<b>Email:</b>	<a href="mailto:vivekjha@bhel.in">vivekjha@bhel.in</a>
<b>Phone:</b>	9429198214

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

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

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

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

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

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

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

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

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

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

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

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- 23.3 Number of partners for a Consortium Bidding (or Technical Tie up) including Prime Bidder shall be NOT more than 3 (three).
- 23.4 Prime Bidder shall be as specified in the Pre-Qualification Requirement, else the bidder who has the major share of work.
- 23.5 In order to be qualified for the tender, Prime Bidder and Consortium partner or partners shall satisfy (i) the Technical 'Pre Qualifying Requirements' specified for the respective package, (ii) "Assessment of Capacity of Bidder" as specified in clause 9.0.
- 23.6 Prime Bidder shall comply with additional 'Technical' criteria of PQR as defined in 'Explanatory Notes for the PQR'.
- 23.7 Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified
- 23.8 In case customer approval is required, then Prime Bidder and Consortium Partner or partners shall have to be individually approved by Customer for being considered for the tender.
- 23.9 Prime Bidder shall be responsible for the overall execution of the contract.
- 23.10 In case of award of job, Performance shall be evaluated for Prime Bidder and Consortium Partner or partners for their respective scope of work(s) as per prescribed formats.
- 23.11 In case the Consortium partner or partners back out, their SDs shall be encashed by BHEL and BHEL shall take necessary action as per extant guidelines. In such a case, other consortium partner or partners meeting the PQR have to be engaged by the Prime Bidder, and if not, the respective work will be withdrawn and executed on risk and cost basis of the Prime Bidder. The new consortium partner or partners shall submit fresh SDs as applicable.
- 23.12 In case Prime Bidder withdraws or insolvency / liquidation / winding up proceedings have been initiated / admitted against the Prime Bidder, BHEL reserves the right to cancel, terminate or short close the contract or take any other action to safeguard BHEL's interest in the Project / Contract. This action will be without prejudice to any other action that BHEL can take under Law and the Contract to safeguard interests of BHEL.
- 23.13 After execution of work, the work experience shall be assigned to the Prime Bidder and the consortium partner or partners for their respective scope of work. After successful execution of one work with a consortium partner under direct order of BHEL, the Prime Bidder shall be eligible for becoming a 'standalone' bidder for works similar to that for which consortium partner was engaged, for subsequent tenders.
- 23.14 The consortium partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. In case there are two consortium partners, then each partner shall submit SD equivalent to 0.5% of the total contract value in addition to the SD to be submitted by the Prime Bidder for the total contract value. However, Prime Bidder has also option for submission of SD on behalf of consortium partner (s).

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

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

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

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

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

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

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

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

**28.1.1 Commitment by BHEL:**

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

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

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

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

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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.

**29.0 Micro and Small Enterprises (MSE)**

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

Type under MSE	SC/ST owned	Women owned	Others (excluding SC/ ST & Women
— Micro			
— Small			

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

~~a) MSE suppliers can avail the intended benefits in respect of the procurements related to the Goods and Services only (Definition of Goods and Services as enumerated by Govt. of India vide Office Memorandum F. No. 21(8)/2011 MA dtd. 09/11/2016 office of AS & DC, MSME) only if they submit along with the offer, attested copies of either Udyam Registration Certificate or EM-II certificate having deemed validity (five years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or Udyog Aadhar Memorandum (UAM) & Acknowledgement or EM-II Certificate along with attested copy of a CA certificate (format enclosed as Annexure — 3) where deemed validity of EM-II certificate of five years has expired applicable for the relevant financial year (latest audited). Date to be reckoned for determining the deemed validity will be the last date of Technical Bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders. No benefits shall be applicable for this enquiry if the above required documents are not submitted before price bid opening. If the tender is to be submitted through e-procurement portal, then the above required documents are to be uploaded on the portal. Documents should be notarized or attested by a Gazetted officer. Documents submitted by the bidder may be verified by BHEL for rendering the applicable benefits.~~

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

**31.0 PREFERENCE TO MAKE IN INDIA:**

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

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

- I. Any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. The Competent Authority for the purpose of this Clause shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT).
- II. "Bidder" (including the term 'tenderer', 'consultant' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the



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*descriptions of bidders stated hereinbefore, including any agency branch or office controlled by such person, participating in a procurement process.*

III. *“Bidder from a country which shares a land border with India” for the purpose of this Clause means: -*

- a. An entity incorporated established or registered in such a country; or*
- b. A subsidiary of an entity incorporated established or registered in such a country; or*
- c. An entity substantially controlled through entities incorporated, established or registered in such a country; or*
- d. An entity whose beneficial owner is situated in such a country; or*
- e. An Indian (or other) agent of such an entity; or*
- f. A natural person who is a citizen of such a country; or*
- g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above*

IV. *The beneficial owner for the purpose of (III) above will be as under:*

- 1. In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together or through one or more juridical person, has a controlling ownership interest or who exercises control through other means.*

*Explanation*

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

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

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

**Note:**

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

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

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

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

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

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

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

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

**35.0 Order of Precedence:**

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

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

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

For BHARAT HEAVY ELECTRICALS LTD

(General Manager - Purchase)

**Enclosure:**



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01. Annexure-1: Pre Qualifying Requirements.
  02. Annexure-2: Check List.
  - ~~03. Annexure-3: Certificate by Chartered Accountant~~
  04. Annexure-4: Reverse Auction Process Compliance Form
  05. Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process
  06. Annexure-6: RA Price Confirmation and Breakup
  07. Annexure-7: Integrity Pact
  08. Annexure-8: Undertaking as per PQR C4 of Annexure-1 i.e. PQR
  09. Annexure-9: Declaration reg. Related Firms & their areas of Activities
  010. Annexure-10: DECLARATION REGARDING MINIMUM LOCAL CONTENT IN LINE WITH REVISED PUBLIC PROCUREMENT (PREFERENCE TO MAKE IN INDIA), ORDER 2017 DATED 04TH JUNE, 2020 AND SUBSEQUENT ORDER(S)
  011. Annexure 11: DECLARATION REGARDING COMPLIANCE TO RESTRICTIONS UNDER RULE 144 (xi) OF GFR 2017
  012. Annexure 12: Important information

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**ANNEXURE - 1**

**PRE QUALIFYING CRITERIA**

JOB	<b>Package Description:</b> Erection, Alignment, Bolting/Welding, Roofing & Cladding Work, supply of all Material (As per TCC and BOQ), Consumables, labour, tools and plants, Supply and application of touchup painting as and wherever required including Handling of Materials at BHEL / Client's Stores / Storage yard and transportation of		
	<div>1. <b>Package-A:</b> Erection of Power House Unit 1 &amp; 2 (incl CCR) structure and other mics. buildings including supply &amp; installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.</div> <div>2. <b>Package-B:</b> Erection of Ash Handling Plant structure, FGD Structure, Tank fabrication &amp; installation and other mics. building Structure including supply &amp; installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.</div> <div>3. <b>Package-C:</b> Erection of Coal Handling Plant structure and other mics. building Structure including supply &amp; installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.</div>		
TENDER NO	BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911		
SL NO	PRE QUALIFICATION CRITERIA	<b>Bidders claim in respect of fulfilling the PQR Criteria</b>	
		Applicability	
A	Submission of Integrity Pact duly signed (if applicable) (Note: <del>To be submitted by Prime Bidder &amp; Consortium</del> <del>/Technical Tie up partner jointly in case Consortium bidding is permitted</del> , otherwise by the sole bidder)	APPLICABLE	
B	<p>B Technical PQR</p> <p><b>B1-Not applicable</b></p> <p>Bidder shall essentially meet all the Qualifying Requirements (i.e. B.2 OR B.3) as under, in the last seven years as on latest date of bid submission:</p> <p><b>B.2 Bidder should have executed work for</b></p> <p>B.2.1) Executed at least 13500 MT for Structure Erection work, within a common period of twelve consecutive months in cumulative of two running/completed contracts.</p> <p style="text-align: center;">OR</p> <p>B.2.2) Executed at least 9000 MT for Structure Erection work, within a period of twelve consecutive months in one running/completed contract.</p> <p style="text-align: center;">OR</p> <p>B.2.3) Executed structural work (erection/fabrication) of Mill Bunker for at least one unit of &gt;= 190 MW.</p> <p style="text-align: center;">OR</p> <p>B.3): Bidder should have executed Boiler (consisting of Structures, Pressure Parts of the same unit as standalone Bidder) for at least one unit of ≥ 190 MW.</p>	APPLICABLE	
C.1	Bidders must have achieved an average annual financial turnover (audited) of Rs. <b>3150 Lakhs or more</b> over last three Financial Years (FY) i.e 2020-21 , 2021-23 & 2022-2023'	APPLICABLE	
C.2	<b>NETWORTH</b> (only in case of Companies)	APPLICABLE	

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	Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive.		
C.3	<b><u>PROFIT</u></b> Bidder must have earned profit in any one of the three Financial Years as applicable in the last three Financial Years as furnished for 'C-1' above.	<b>APPLICABLE</b>	
C-4	Bidder must not be under Bankruptcy Code Proceedings (IBC) by NCLT or under Liquidation / BIFR, which will render him ineligible for participation in this tender, and shall submit undertaking ( <b>Annexure-8</b> ) to this effect.	<b>APPLICABLE</b>	
D	Assessment of Capacity of Bidder:  The "Assessment of Capacity of Bidders" for this Tender shall be carried out by considering the identified packages i.e. <b>"Structural Steel Fabrication &amp; Erection"</b>	<b>APPLICABLE</b>	
E	<b>Approval of Customer (if applicable):</b>  <b>Note:</b> Names of bidders (including consortium/Technical Tie up partners in case consortium bidding is permitted) who stand qualified after compliance of criteria A to D shall be forwarded to customer for their approval	<b>NOT APPLICABLE</b>	
F	Price Bid Opening <b>Note:</b> Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to E		<b>BY BHEL</b>
G	Consortium tie-ups	<b>NOT APPLICABLE</b>	
<b><u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u></b>  <b><u>Explanatory Notes for PQR B.1 (Technical)</u></b> <ul style="list-style-type: none"> <li>For the criteria (B.1), actual executed value shall be considered.</li> <li>Value of work is to be updated with indices for "All India Avg. Consumer Price index for industrial workers" and "Monthly Whole Sale Price Index for All Commodities" with base month as per last month of work execution and indexed up to three (3) months prior to the month of latest due date of bid submission as per following formula- <math display="block">P = R + \frac{0.425 \times R \times (X_N - X_0)}{X_0} + \frac{0.425 \times R \times (Y_N - Y_0)}{Y_0}</math> <p>Where  P = Updated value of work  R = Value of executed work  X<sub>N</sub> = All India Avg. Consumer Price index for industrial workers for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered).  X<sub>0</sub> = All India Avg. Consumer Price index for industrial workers for last month of work execution  Y<sub>N</sub> = Monthly Whole Sale Price Index for All Commodities for three months prior to the month of latest due date of bid submission (e.g. If latest bid submission date is 02-Mar-17, then bid submission month shall be reckoned as March'17 and index for Dec'2016 shall be considered).  Y<sub>0</sub> = Monthly Whole Sale Price Index for All Commodities for last month of work</p> </li> </ul>			

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execution

- The evaluation currency for this tender shall be INR.

**Explanatory Notes for Technical Criteria (B2):**

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

**Explanatory Notes for PQR -C (Financial):**

**C-1:**

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

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

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

Net worth = Paid up share capital + Reserves

**C-3:** Bidder must have earned profit in any one of the three financial years as applicable in the

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last three financial years as furnished for 'C-1' above.

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

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

**Common Explanatory Notes:**

1. For evaluation of PQR, in case Bidder alone does not meet the pre-qualifying technical criteria B1 above, bidder may utilize the experience of its Parent/ Subsidiary Company along with its own experience, subject to following:
  - a. The parent company shall have a controlling stake of  $\geq 50\%$  in the subsidiary company (as per Format-1).
  - b. The Parent Company/ Subsidiary Company of which experience is being utilized for bidding shall submit Security Deposit(SD) equivalent to 1% of the total contract value
  - c. The parent/ subsidiary company and bidder shall provide an undertaking that they are jointly or severally responsible for successful performance of the contract (as per Format-2).
  - d. In case Bidder is submitting bid as a Consortium Partner, option of utilizing experience of parent/subsidiary Company can be availed by Prime Bidder only.
  - e. Parent Company/ Subsidiary Company of which experience is being used for bidding, cannot participate as a 'Standalone Bidder' or as a 'Consortium bidder'.
2. Completion date for achievement of the technical criteria specified in the 'B' above should be in the last 7 years ending on the 'latest date of Bid Submission' of Tender irrespective of date of the start of work. Completion date shall be reckoned from the "Financial Year quarter of bid submission". (for e.g. -Work completed on 01.01.2014 shall be considered even if latest date of bid submission is 20.03.2021).
3. "Executed" means the bidder should have achieved the technical criteria specified in the Common QR even if the Contract has not been completed or closed.
4. In case the Experience/PO/WO certificate enclosed by bidders do not have separate break up of prices for the E&C portion for Electrical and C&I works (i.e. the certificates enclosed are for composite order for supply and erection of Electrical and C&I and other works if any), then value of Erection & Commissioning for the Electrical and C&I portion shall be considered as 15% of the price for supply & erection of Electrical and C&I.
5. Following shall be complied with in case of consortium:
  - a. The Prime Bidder and Consortium Partner(s) are required to enter in to a consortium agreement and certify to BHEL regarding existence and validity of their consortium agreement in line with validity period mentioned in NIT.
  - b. Prime Bidder and Consortium partners shall be approved by Customer for being considered for the tender (applicable if customer approval is required).
  - c. Number of partners including prime Bidder shall be NOT more than 3 (three).
  - d. Prime Bidder alone shall necessarily comply with "B1 Technical Criteria" except for mechanical package where B1 criteria is not applicable.
  - e. Prime Bidder and Consortium Partner shall together comply with the 'Pre-Qualification Requirements' specified for the respective category of technical requirement as per "B2 technical criteria".
  - f. Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender

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

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

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

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**Format-1**

**Not applicable**

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**Format-2**

**Not applicable**



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

1	Name and Address of the Tenderer		
2	Details about type of the Firm/Company		
3.a	Details of Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
3.b	Details of alternate Contact person for this Tender	Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No:	
4	EMD DETAILS	DD No:                      Date : Bank :                      Amount: <u>Please tick ( √ ) whichever applicable:-</u> <del>ONE TIME EMD</del> / ONLY FOR THIS TENDER	
5	Validity of Offer	TO BE VALID FOR SIX MONTHS FROM DUE DATE	
		APPLICABILITY (BY BHEL)	ENCLOSED BY BIDDER
6	Whether the format for compliance with <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/ <del>Not Applicable</del>	YES/NO
8	Copy of GST & PAN Card	Applicable/ <del>Not Applicable</del>	YES/NO
9	Whether all pages of the Tender documents including annexures, appendices etc. are read understood and signed	Applicable/ <del>Not Applicable</del>	YES/NO
10	Integrity Pact	Applicable/ <del>Not Applicable</del>	YES/NO
11	OFFER FORWARDING LETTER / TENDER SUBMISSION LETTER	Applicable/ <del>Not Applicable</del>	YES/NO
12	Declaration by Authorized Signatory	Applicable/ <del>Not Applicable</del>	YES/NO
13	No Deviation Certificate	Applicable/ <del>Not Applicable</del>	YES/NO
14	Declaration confirming knowledge about Site Conditions	Applicable/ <del>Not Applicable</del>	YES/NO
15	Declaration for relation in BHEL	Applicable/ <del>Not Applicable</del>	YES/NO

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16	Non-Disclosure Certificate	Applicable/ <del>Not Applicable</del>	YES/NO
17	Bank Account Details for E-Payment	Applicable/ <del>Not Applicable</del>	YES/NO
18	Capacity Evaluation of Bidder for current Tender	Applicable/ <del>Not Applicable</del>	YES/NO
19	Tie Ups/Consortium Agreement are submitted as per format	Applicable/ <del>Not Applicable</del>	YES/ NO
20	Power of Attorney for Submission of Tender/Signing Contract Agreement <del>Power of Attorney of Consortium Partner.</del>	Applicable/ <del>Not Applicable</del>	YES/NO
21	Analysis of Unit rates	Applicable/ <del>Not Applicable</del>	YES/NO
22	Annexure-5: Authorization of representative who will participate in the online Reverse Auction Process	Applicable/ <del>Not Applicable</del>	YES/NO
23	Annexure-6: RA Price Confirmation and Breakup	Applicable/ <del>Not Applicable</del>	YES/NO
24	Annexure-8: Undertaking as per PQR C4 of Annexure-1 i.e. PQR	Applicable/ <del>Not Applicable</del>	YES/NO
25	Annexure-9: Declaration reg. Related Firms & their areas of Activities (x) Other Tender documents as per this NIT.	Applicable/ <del>Not Applicable</del>	YES/NO
26	Annexure-10 Declaration regarding minimum local content	Applicable/ <del>Not Applicable</del>	YES/NO
27	Annexure-11: Declaration regarding compliance to restrictions under rule 144 (xi) of GFR 2017	Applicable/ <del>Not Applicable</del>	YES/NO

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

**DATE :****AUTHORISED SIGNATORY****(With Name, Designation and Company seal)**

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**ANNEXURE-3**

**Certificate by Chartered Accountant on letter head**

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

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

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

1. ~~For Manufacturing Enterprises:~~ Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No. S.O.1722(E) dated October 5, 2006:  
Rs..... Laacs
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..... Laacs
3. ~~For Enterprises (having EM-II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum):~~ Investment in plant and machinery or equipment is Rs..... Laacs and turnover is Rs. .... Laacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)
4. ~~For Enterprises (having EM-II Certificate/ valid NSIC Certificate or Udyog Aadhar Memorandum):~~ Investment in plant and machinery or equipment is Rs..... Laacs and turnover is Rs. .... Laacs (as notified in MSME notification no. S.O. 2119 (E) dated 26.06.2020)

~~(Strike off whichever is not applicable)~~

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

Or

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

Or

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

Date:

(Signature)

Name:

Membership Number:

Seal of the Chartered Accountant

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**ANNEXURE-4**

**Reverse Auction Process Compliance Form**

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

To

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

**Sub: Agreement to the Process related Terms and Conditions**

Dear Sir,

This has reference to the Terms & Conditions for the Reverse Auction mentioned in the RFQ document for {Items} against BHEL enquiry/ RFQ no.{ BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911} dt. {.....}  
This letter is to confirm that:

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

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

With regards

Signature with company seal

Name:

Company / Organization:

Designation within Company / Organization:

Address of Company / Organization:

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

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Website: [www.bhel.com](http://www.bhel.com)

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**ANNEXURE – 5**

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

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

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**ANNEXURE – 6**

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

To

- M/s. Service provider
- Postal address

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

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

Dear Sir,

We confirm that we have quoted.

Rs. \_\_\_\_\_ (in value) &  
\_\_\_\_\_ (in words)

**for item(s) covered under tender enquiry No. BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911**

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

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

Yours sincerely,

For \_\_\_\_\_

**Name:**

**Company:**

**Date:**

**Seal:**

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**ANNEXURE – 7**

**INTEGRITY PACT**

**Between**

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

**and**

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

**Preamble**

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

***Package Description: Erection, Alignment, Bolting/Welding, Roofing & Cladding Work, supply of all Material (As per TCC and BOQ), Consumables, labour, tools and plants, Supply and application of touchup painting as and wherever required including Handling of Materials at BHEL / Client's Stores / Storage yard and transportation of***

- 1. Package-A: Erection of Power House Unit 1 & 2 (incl CCR) structure and other mics. buildings including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.***
- 2. Package-B: Erection of Ash Handling Plant structure, FGD Structure, Tank fabrication & installation and other mics. building Structure including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.***
- 3. Package-C: Erection of Coal Handling Plant structure and other mics. building Structure including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.***

***(ETS no.: BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911).***

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:-

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- 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 Indian Penal Code (IPC) and Prevention of Corruption Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 Foreign Bidder(s)/ Contractor(s) shall disclose the name and address of agents and representatives in India and Indian Bidder(s)/ Contractor(s) to disclose their foreign principals or associates. The Bidder(s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.



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

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

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

If the Bidder(s)/ Contractor(s), before award or during execution has committed a transgression through a violation of Section 2 above, or acts in any other manner such as to put his reliability or credibility in 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 Principal will enter into agreements with identical conditions as this one with all Bidders and Contractors. In case of sub-contracting, the Principal contractor shall be responsible for the adoption of IP by his sub-contractors and shall continue to remain responsible for any default by his sub-contractors.

6.2 The Principal will disqualify from the tender process all bidders who do not sign this pact or violate its provisions.

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

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

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**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 in line with Non-disclosure agreement.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meetings could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 The role of IEMs is advisory, would not be legally binding and it is restricted to resolving issues raised by an intending bidder regarding any aspect of the tender which allegedly restricts competition or bias towards some bidders. At the same time, it must be understood that IEMs are not consultants to the Management. Their role is independent in nature and the advice once tendered would not be subject to review at the request of the organization.
- 8.6 For ensuring the desired transparency and objectivity in dealing with the complaints arising out of any tendering process, the matter should be examined by the full panel of IEMs jointly as far as possible, who would look into the records, conduct an investigation, and submit their joint recommendations to the Management.
- 8.7 The IEMs would examine all complaints received by them and give their recommendations/ views to CMD, BHEL, at the earliest. They may also send their report directly to the CVO and the Commission, in case of suspicion of serious irregularities requiring legal/ administrative action. IEMs will tender their advice on the complaints within 10 days as far as possible.
- 8.8 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.9 IEM should examine the process integrity; they are not expected to concern themselves with fixing of responsibility of officers. Complaints alleging mala fide on the part of any officer of the organization should be looked into by the CVO of the concerned organisation.
- 8.10 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant Indian Penal Code/ Prevention of Corruption Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor

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.....  
may also transmit this information directly to the Central Vigilance Commissioner, Government of India.

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

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

**Section 9 - Pact Duration**

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

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

**Section 10 - Other Provisions**

10.1 This Integrity Pact is subject to Indian Laws and exclusive jurisdiction shall be of the competent Courts as indicated in the Tender or Contract, as the case may be.

10.2 Changes and supplements as well as termination notices need to be made in writing.

10.3 If the Bidder(s)/ Contractor(s) is a partnership or a consortium or a joint venture, this Integrity Pact shall be signed by all partners of the partnership or joint venture or all consortium members.

10.4 Should one or several provisions of this Integrity Pact turn out to be invalid, the remainder of this Integrity Pact 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 Integrity Pact with the Principal would be competent to participate in the bidding. In other words, entering into this Integrity Pact would be a preliminary qualification.

10.6 In the event of any dispute between the Principal and Bidder(s)/ Contractor(s) relating to the Contract, in case, both the parties are agreeable, they may try to settle dispute through Mediation before the panel of IEMs in a time bound manner. In case, the dispute remains unresolved even after mediation by the panel of IEMs, either party may take further action as the terms & conditions of the Contract. The fees/expenses on dispute resolution through mediation shall be shared by both the parties. Further, the mediation proceedings shall be confidential in nature and the parties shall keep confidential all matters relating to the mediation proceedings including any settlement agreement arrived at between the parties as outcome of mediation. Any views expressed, suggestions, admissions or proposals etc. made by either party in the course of mediation shall not be relied

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.....  
upon or introduced as evidence in any further arbitral or judicial proceedings, whether or not such proceedings relate to the dispute that is the subject of mediation proceedings. Neither of the parties shall present IEMs as witness in any Alternative Dispute Resolution or judicial proceedings in respect of the dispute that was subject of mediation.



-----  
For & On behalf of the Principal

(Office Seal)

Place-----

Date-----

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

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

\_\_\_\_\_

-----  
For & On behalf of the Bidder/ Contractor

(Office Seal)

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

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

\_\_\_\_\_

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**ANNEXURE – 8**

**UNDERTAKING**

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

**To,**

GM-PURCHASE, BHEL-PSWR,  
Floor No. 5&6, Shri Mohini Complex  
345, KINGSWAY, NAGPUR-440001

Dear Sir/Madam,

**Sub: DECLARATION REGARDING INSOLVENCY/ LIQUIDATION/ BANKRUPTCY PROCEEDINGS**

**Ref:** NIT/Tender Specification No: BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911

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

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

Place:  
Date:

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Website: www.bhel.com

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**Annexure-9**

**DECLARATION**

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

To

GM-PURCHASE, BHEL-PSWR,  
Floor No. 5&6, Shri Mohini Complex  
345, KINGSWAY, NAGPUR-440001

**Sub: Details of related firms and their area of activities**

Dear Sir/ Madam,

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

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

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

Regards,  
( \_\_\_\_\_ )

From: M/s \_\_\_\_\_  
Supplier Code: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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**Annexure-10**

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

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

To,  
GM-PURCHASE, BHEL-PSWR,  
Floor No. 5&6, Shri Mohini Complex  
345, KINGSWAY, NAGPUR-440001

Dear Sir,

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

**Ref :** 1) NIT/Tender Specification No: BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911,  
2) All other pertinent issues till date

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

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

- |          |          |
|----------|----------|
| 1. _____ | 2. _____ |
| 3. _____ | 4. _____ |

...

Thanking you,  
Yours faithfully,

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

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

**Note:**

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

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**Annexure-11**

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

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

To,

GM-PURCHASE, BHEL-PSWR,  
Floor No. 5&6, Shri Mohini Complex  
345, KINGSWAY, NAGPUR-440001

Dear Sir,

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

**Ref :** 1) NIT/Tender Specification No: BHE/PW/PUR/TLRPT- MPH-CHP-AHP-STR/2911,  
2) All other pertinent issues till date

I have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries. I certify that \_\_\_\_\_ *(specify the name of the organization here),*

(a) is not from such a country / ☐

(b) has been registered with the Competent Authority *(attach valid registration by the Competent Authority, i.e., the Registration Committee constituted by the Dept. for Promotion of Industry and Internal Trade (DPIIT))*; ☐

and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. *(attach relevant valid registration, if applicable)*

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

Thanking you,  
Yours faithfully,

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

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

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Website: www.bhel.com



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**Annexure-12: IMPORTANT INFORMATION**

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

**Postal Address:**

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

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

Manager Purchase, Email: [vivekjha@bhel.in](mailto:vivekjha@bhel.in)

DGM/Purchase, email: [kamleshbhel@bhel.in](mailto:kamleshbhel@bhel.in),

1. **Refer the abridged version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' which is available at [www.bhel.com](http://www.bhel.com) on "supplier registration page" at the following link: [http://www.bhel.com/sites/default/files/suspension\\_guidelines\\_abridged.pdf](http://www.bhel.com/sites/default/files/suspension_guidelines_abridged.pdf)**
2. **All Statutory Requirements as applicable for this project shall be complied with.**
3. **Following clause shall form part of the HSE documents issued under Chapter IX of Volume IB 'Special Conditions of Contract'**

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

4. **BHEL Fraud Prevention Policy: "The Bidder along with its associate/ collaborators/ sub-contractors/ sub-vendors/ consultants/ service providers shall strictly adhere to BHEL Fraud Prevention Policy displayed on BHEL website <http://www.bhel.com> and shall immediately bring to the notice of BHEL Management about any fraud or suspected fraud as soon as it comes to their notice."**
5. **"Pradhan Mantri Kaushal Vikas Yojna:** 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 particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding".
6. **Conflict of Interest among Bidders/ Agents:**

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“A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. ***The bidder found to have a conflict of interest shall be disqualified.*** A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

- a) they have controlling partner (s) in common; **or**
- b) they receive or have received any direct or indirect subsidy/ financial stake from any of them; **or**
- c) they have the same legal representative/agent for purposes of this bid; **or**
- d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; **or**
- e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid; **or**
- f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorize only one agent/dealer. There can be only one bid from the following:
  - 1. The principal manufacturer directly or through one Indian agent on his behalf; **and**
  - 2. Indian/foreign agent on behalf of only one principal;

**or**
- g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; **or**
- h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business.”

**7. Acceptance of Bank Guarantee (BG)**

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

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

“Bank Guarantee issued by:

- a. Any of the BHEL consortium bank listed below:

State Bank of India  
ABN Amro Bank N.V.  
Bank of Baroda

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Canara Bank  
Citi Bank N.A.  
Corporation Bank  
Deutsche Bank  
HDFC Bank Ltd.  
The Hongkong and Shanghai Banking Corporation Ltd  
ICICI Bank Ltd.  
IDBI Ltd.  
Punjab National Bank  
Standard Chartered Bank  
State Bank of Travancore  
State Bank of Hyderabad  
Syndicate Bank

- b. Any public sector Bank (other than consortium banks) with a clause in the text of Bank Guarantee that **"It is enforceable at Nagpur, Maharashtra"**.
- c. Any private sector banks, with a clause in the text of Bank Guarantee that **"It is enforceable by being presented at any branch of the bank"**.

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

**8. Broad Terms & Conditions of Reverse Auction:**

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

"BHEL shall be resorting to Reverse Auction (RA) (Guidelines as available on [www.bhel.com](http://www.bhel.com)) (<https://www.bhel.com/guidelines-reverse-auction-2021>) for this tender. RA shall be conducted among the techno-commercially qualified bidders.

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

**Note:-**

1. No benefits to MSE bidders w.r.t Reverse Auction Guidelines as available on [www.bhel.com](http://www.bhel.com) against works contract.
2. In case of enquiry through e-procurement, the sealed electronic price bid (e-bid) is to be treated as sealed envelope price bid.
3. Reverse Auction will be conducted if two or more bidders are techno-commercially qualified. In case of two or three qualified bidders, there shall be no elimination of H1 bidder (whose quote is highest in sealed envelope price bid). In case of four qualified bidders, the H1 bidder shall be eliminated whereas in case of five qualified bidders, H1 & H2 bidders shall be eliminated. However, in case of six or more qualified bidders are available, RA would be conducted amongst first 50% of the bidders arranged in the order of prices from lowest to highest. Number of bidders eligible for participating in RA would be rounded off to next higher integer value if number of qualified bidders is odd (e.g. if 7 bids are qualified, then RA will be conducted amongst lowest four bidders). However, there will be no elimination of qualified bidders who are MSE or qualifying under PPP-MII, Order 2017, provided their bids are within their respective margin of purchase preference {**presently 15% for MSEs and 20% for PPP-MII, or as amended from time to time**}.

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*In case of multiple H1 bidders, all H1 bidders (except MSEs and bidders qualifying under PPP-MII, Order 2017, who are within the margin of purchase preference) shall be removed provided minimum two bidders remain in fray, else no H1 removal.*

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

**10. Clause no. 2.24 of GCC PERFORMANCE GUARANTEE FOR WORKMANSHIP:** The guarantee period shall commence from the date of Completion of Contractual work for each package as certified by BHEL Engineer-in-charge.

**11.** The clause 2.7.9.1 below is added under the heading “Rights of BHEL” of General Conditions of **Contract Volume-IC GCC.**

**2.7.9.1** Provision of Penalty in case of slippage of Intermediate Milestones:

- i) Two major Intermediate Milestones are mentioned as M1 & M2 in Chapter VI: Time Schedule of Vol IA Technical Conditions of Contract.
- ii) In case of slippage of these identified Intermediate Milestones, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to Form 14.
- iii) In case delay in achieving M1 Milestone is solely attributable to the contractor, 0.5% per week of Executable Contract Value\*, limited to maximum 2% of Executable Contract Value, will be withheld.
- iv) In case delay in achieving M2 Milestone is solely attributable to the contractor, 0.5% per week of Executable Contract Value\*, limited to maximum 3% of Executable Contract Value, will be withheld.
- v) Amount already withheld, if any against slippage of M1 milestone, shall be released only if there is no delay attributable to contractor in achievement of M2 Milestone.
- vi) Amount required to be withheld on account of slippage of identified intermediate milestone(s) shall be withheld out of respective milestone payment and balance amount (if any) shall be withheld @10% of RA Bill amount from subsequent RA bills.
- vii) Final deduction towards LD (if applicable as per clause 2.7.9 above), on account of delay attributable to contractor shall be based on final delay analysis on completion / closure of contract. Withheld amount, if any due to slippage of identified intermediate milestone(s) shall be adjusted against LD or released as the case may be.
- viii) In case of termination of contract due to any reason attributable to contractor before completion of work, the amount already withheld against slippage of intermediate milestones shall not be released and be converted into recovery.

\* **Executable Contract Value** - Value of work for which inputs/ fronts were made available to contractor and were scheduled for execution till the date of achievement of that milestone.

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12. **ORC:** ORC shall be applicable only for Section-A & Section-B of 'Chapter-XXVI: Bill of Quantities and % Weightage of Individual Items' of TCC. ORC clause shall be separately applicable for each package.

**Note**

- **ORC shall not be applicable for Section-C (Execution/Mobilisation of special resources)** of 'Chapter-XXVI: Bill of Quantities and % Weightage of Individual Items' of TCC.

13. **PRICE VARIATION COMPENSATION Clause no. 2.17 of Vol-I-C-GCC:** PVC shall be applicable only for Section-A , Section-B of 'Chapter-XXVI: Bill of Quantities and % Weightage of Individual Items' of TCC.

Clause no. 2.17 of Vol-I-C-GCC shall not be applicable for Section-C (Execution/Mobilisation of special resources) of 'Chapter-XXVI: Bill of Quantities and % Weightage of Individual Items' of TCC.

**Clause 2.17.6 of GCC: PRICE VARIATION COMPENSATION is amended as below-**

Existing clause 2.17.6 of GCC : PRICE VARIATION COMPENSATION	Amended clause
Base date shall be calendar month of the 'last date of submission of Tender'.	Base date shall be calendar month of the "date start of work duly certified by BHEL engineer." For each package

**14.Modality of Award**

- LOA for each Package (A, B, C) shall be issued separately and each Package shall be considered as separate contract with separate contract period (as specified in Chapter-VI "Time Schedule" of TCC), separate start dates and separate contract value etc.
- All the records of the contracts viz Measurement of work, progress monitoring, monthly review, performance evaluation etc shall be maintained for all the contracts separately.
- Clause of GCC Viz SD, LD, ORC, PVC, Time Extension, Retention amount, guarantee period, Quantity variation, final bill etc shall be applicable for each individual package/contracts.

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# TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS  
LIMITED



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

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# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-I: Project Information

### 1. Project Information

Sl. No.	Description	Details
1	Project Title	2X660 MW Talcher Thermal Power Station
2	Customer	National Thermal Power Corporation Limited (NTPC Limited)
3	Location	The proposed site is at a distance of about 4 km from Talcher town and about 25 km from district headquarters Angul in Odisha state, India.
4	Nearest Railway Station	Talcher is on Talcher-Cuttack section of North Eastern Railway (renamed East Coast Railway) at about 2 Km. However, a small railway station named 'Talcher Thermal' is located near project boundary.
5	Nearest Airport	Bhubaneswar (56 approx.. 150Km by road)
6	Access By Road/Major Cities	The area is accessible by NH-23 (renamed NH-149) at about 1 km.
7	Temperature	Mean of daily minimum temperature = 15.1°C Mean of daily maximum temperature = 39.8°C
8	Seismic Zone	The project site lies in zone III as defined in IS: 1893.
9	Wind Speed	Design wind speed is 50 m/sec as per IS: 875 Part III

Above information furnished are for general guidance of Contractor. However, Contractor has advised to visit the site and appraise himself about the conditions of site and infrastructure available in the area for fulfilling their commitments under the contract.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-II: Scope of Work

### 2.0 SCOPE OF WORK:

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

(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

2.1 The scope of work for package as follows:

**Package Description:** Erection, Alignment, Bolting/Welding, Roofing & Cladding Work, supply of all Material (As per TCC and BOQ), Consumables, labour, tools and plants, Supply and application of touchup painting as and wherever required including Handling of Materials at BHEL / Client's Stores / Storage yard and transportation of

1. **Package-A:** Erection of Power House Unit 1 & 2 (incl CCR) structure and other mics. buildings including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.
2. **Package-B:** Erection of Ash Handling Plant structure, FGD Structure, Tank fabrication & installation and other mics. building Structure including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.
3. **Package-C:** Erection of Coal Handling Plant structure and other mics. building Structure including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.

2.2 The scope of works covers Bolted Type Structural steel works (i.e. Pre-Assembly, Erection, Alignment, Bolting and touch-up painting other allied works) of structural Building and Associates structure of 2X660MW Talcher TPS as mentioned below. Scope of work includes supply of all Material (As per TCC and BOQ), Consumables, labour, tools and plants. **BHEL shall provide structural steel/pre-fabricated structures as per TCC for incorporation in the permanent works as free supply.** The scope of work is indicative but not limited to the given below.

#### List of Structures:

S.No	System	Building/Structure	Engg By	Package
1	Plant building	Workers building & rest room	PEM	Package A
2	Plant building	Workshop building	PEM	Package A
3	FGD	Gypsum De-watering Building	PEM	Package B
4	FGD	Wet Ball Mill Bld. + Limestone Day Silo support structure	PEM	Package B
5	Power House	Main Power House ( TG building) Unit-1	PEM	Package A
6	Power House	Main Power House ( TG building) Unit-2	PEM	Package A
7	Power House	CCR building	PEM	Package A
8	Main Plant	Main Plant Pipe & Cable Rack	PEM	Package A
9	BOP	BOP Pipe & Cable Rack	PEM	Package A
10	BOP	Compressor House	PEM	Package A
11	BOP	Cooling water Chlorination plant	PEM	Package A
12	BOP	DM Plant	PEM	Package A

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-II: Scope of Work

S.No	System	Building/Structure	Engg By	Package
13	Water System	Clarified water Pump house	PEM	Package A
14	Water System	DM, Boiler fill, SW, CPU Pump house	PEM	Package A
15	TG lube oil system	Central Lube Oil Pump House	PEM	Package A
16	BOP	Gas cylinder shed	PEM	Package A
17	Fuel oil system	FO pressurizing cum forwarding Pump House	PEM	Package A
18	Water System	Cooling Water Pump House	PEM	Package A
19	CHP	CHP waste water treatment plant	PEM	Package C
20	CHP	Crusher House	ISG	Package C
21	CHP	TP-1	ISG	Package C
22	CHP	TP-2	ISG	Package C
23	CHP	TP-3	ISG	Package C
24	CHP	Dozer Shed	ISG	Package C
25	CHP	Dust Suspension Pump House-1	ISG	Package C
26	CHP	Dust Suspension Pump House-2	ISG	Package C
27	CHP	Compressor House	ISG	Package C
28	CHP	Track Hopper(SHED+Grating)	ISG	Package C
29	CHP	Conv. 1 A/B	ISG	Package C
30	CHP	Conv. 2 A/B	ISG	Package C
31	CHP	Conv. 3 A/B	ISG	Package C
32	CHP	Conv. 4 A/B	ISG	Package C
33	CHP	Conv. 5 A/B	ISG	Package C
34	CHP	Conv. 6	ISG	Package C
35	CHP	CHP Pipe & Cable Rack	ISG	Package C
36	CHP	MISC. Structure 1	ISG	Package C
37	CHP	MISC. Structure 2	ISG	Package C
38	AHP	AHP Pipe Rack	ISG	Package B
39	AHP	AHP Cable Rack	ISG	Package B
40	AHP	Compresor House-1	ISG	Package B
41	AHP	Compresor House-2	ISG	Package B
42	AHP	Ash Bagging Shed	ISG	Package B
43	AHP	Silo Utility Building	ISG	Package B
44	AHP	Ash Water Pump House	ISG	Package B
45	AHP	Ash Slurry Pump House	ISG	Package B
46	AHP	FA Silo	ISG	Package B
47	AHP	IM Silo	ISG	Package B

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-II: Scope of Work

S.No	System	Building/Structure	Engg By	Package
48	LHP/GHP	Limestone Crusher House	ISG	Package B
49	LHP/GHP	LTP-1	ISG	Package B
50	LHP/GHP	DE Structure & Drive floor	ISG	Package B
51	LHP/GHP	Limestone storage silo	ISG	Package B
52	LHP/GHP	LBCN 1 A/B	ISG	Package B
53	LHP/GHP	LBCN 3 A/B	ISG	Package B
54	LHP/GHP	GH 1 A/B	ISG	Package B
55	LHP/GHP	Gypsum Shed/Tripper Conv.	ISG	Package B
56	LHP/GHP	Misc. Structure	ISG	Package B
57	CHP	CHP maintenance building	ISG	Package C
58	CHP, LHP & GHP	common CHP LHP GHP pump house	ISG	Package B
59	Switchyard	GIS building	TBG	Package A

### 2.3 The scope of work also includes:

- Fixing of BOI Items as mentioned in BOQ such as fixing of Deck sheet and cladding etc. as per specification.
- Supply & installation of items as per BOQ.
- Erection of Pipe and cable rack within the plant premises.
- Erection of Structures in tranches etc.
- Erection of building Structure including EOT girder.
- Fixing of stools in CHP structures.

### 2.4 The work to be carried out at quoted / accepted rates by the Contractor under the scope of these specifications covers the complete work of handling, loading and transporting of materials from project stores sheds / storage yards to site of erection or preassembly yard and unloading at pre-assembly area/erection site, checking, cleaning chipping and levelling of foundations, providing packers and shims/pre-assembling of equipment at the preassembly yard, inspection, minor rectification, preservation, erection, levelling, and other adjustments, cutting, edge / surface preparation, welding, grinding, wherever needed, application of touch up Painting (as and where required).

### 2.5 The works to be performed under this contract consist of providing all labour, supervision, material, scaffolding, construction equipment's, tools and plants, temporary works, supplies including POL, transportation and all incidental items not shown or specified but reasonably implied or necessary for the proper completion of work in all respects. Testing of all materials etc. are included on the rates of items of work. Works shall be carried out only with approved structural erection drawings.

### 2.6 All the work areas shall be adequately flood lighted to the satisfaction of the Engineer-in-Charge when the work is in progress during the night shifts.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-II: Scope of Work

- 2.7** The unit rates shall include all material equipment, fixtures, labour construction plant, temporary works and everything whether of permanent or temporary nature necessary for the completion of job in all respects.
- 2.8** The bidder should fully apprise himself of the prevailing conditions at the proposed site, climatic conditions including monsoon pattern, local conditions, soil strata and site specific parameters and shall include for all such conditions and contingent measures in the bid, including those which may have not been specifically brought out in the specifications.
- 2.9** The quantities indicated in the tender specification are approximate and are liable for variation at the discretion of BHEL. The work executed shall be measured and priced as per the unit rate arrived at for each work area as mentioned in the relevant clauses.
- 2.10** The weights given in the Chapter-IX "ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)" are approximate and these are subject to change as per site conditions.
- 2.11** Supervisors / Engineers, consumables etc., required for the scope of work shall be provided by the contractor. All the expenditure including taxes and incidentals in this connection will have to be borne by agency unless otherwise specified in the relevant clause. The contractor's quoted rates should be inclusive of all such contingencies.
- 2.12** It shall be specially noted that, the contractor may have to work round the clock (24x7) or may have to deploy additional manpower/resources to achieve the completion schedules / plans / targets during the entire course of erection and commissioning works, which may involve considerable payment including overtime. Hence contractor's quoted rate shall take into consideration of all expenses that will be incurred for such arrangement of personnel including labours, engineers / supervisors, T&Ps etc.
- 2.13** The terminal points can be inferred from the relevant drawings and any further clarifications can be obtained/decided by BHEL and that is final and binding on the contractor for deciding the scope of work and effecting the payment for the work done up to the terminals. Carrying out work as per the specification between equipments constituting terminal points, whether the terminal equipments fall within the scope of work/specification, contractor shall carry out the terminal joints at either end. Also where the piping connection to the terminal points involve flanged joints, matching of flanges, fixing gaskets, bolting and tightening as per BHEL Engineers instructions is in the scope of work. In case piping connected to equipment, matching of flanges for achieving the parallelism and alignment at the equipment end, by suitably resorting to heat correction or other method as instructed by BHEL Engineer, with in the quoted rate.
- 2.14** The work shall conform to dimensions and tolerances given in various drawings and quality manuals provided by BHEL. If any portion of work is found to be defective in workmanship not conforming to drawings or other stipulations, the contractor shall dismantle and redo the work duly replacing the defective materials at his cost, failing which the job will be carried out by

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-II: Scope of Work

BHEL by engaging other agencies / departmentally and recoveries will be effected from contractor's bill towards expenditure incurred including BHEL's overhead charges.

- 2.15** Considering the area constrain in the subject project, Contractor has to work in close co-ordination with other erection/Civil agency at site. BHEL engineer will co-ordinate area clearance. In a project of such magnitude, it is possible that the area clearance may be less/more at a particular given time. Activities and erection program have to be planned in such a way that the project milestone events like boiler light up, steam blowing, SV Floating etc., are achieved as per schedule/ plans. Contractor shall arrange & augment the resources accordingly.
- 2.16** No member of the already erected structure/ platform, pipes, grills, platform, other component and auxiliaries should be cut without specific approval of BHEL engineer.
- 2.17** The storage yard is located within the plant boundary and outside plant boundary (approx. 10 KM) of the plant premises in multiple locations. All other materials have to be transported from storage yard to construction area by the contractor at his own cost, using own **Pick & Carry Crane (Farrana)**, crane and trailer. **BHEL shall reimburse transportation charges at a fixed rate of Rs. 5 per KM per MT for distance beyond 5Km between material gate and Material storage yard.**
- 2.18** Painting: Touch-up Painting (Applicable for Structure Erection): All structures/ components shall be supplied from BHEL units/ workshops with finish coats of paint. Therefore, final painting is not applicable in the scope of contractor for Unit supplied items. However, touch up painting (wherever required), incidental to the work, shall be in the scope of the contractor, including supply of the required paints and primers and associated consumables.
- 2.19** During the course of erection, certain rework / modification / rectification / repairs / fabrication etc will be necessary on account of feedback/revision from various relevant sources, and also on account of design discrepancies/ alterations, manufacturing defects, site operations/ maintenance requirements. This will also include modifications / re-works suggested by BHEL / customer / other inspection group. Contractor shall carry out such rework / modification / rectification / fabrication / repairs etc promptly and expeditiously. Daily log sheets indicating the details of work carried out, man-hours etc shall be maintained by the contractor and got signed by BHEL engineer every day. Claim of Contractor if any, for such works will be governed by relevant clauses of 'General Conditions of Contract.
- 2.20** The scope of work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, engineering and construction management **including high standard safety management (as per relevant clause of tender document) and green belt management (Project Management, HSE & Quality etc.)**. The contractor should ensure successful and timely completion of the work. The contractor must have adequate quantity of tools, construction aids, equipments etc., in his possession. He must also have on his rolls adequate trained, qualified and experienced supervisory staff and skilled personnel. The

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-II: Scope of Work

manpower deployment identified by contractor shall match with above scope of works. **(Refer HSE Manual)**

**2.21** Contractor shall execute the work as per sequence and procedure prescribed by BHEL at site. The erection manuals which are available with BHEL site office are to be referred for compliance and guidance before taking up the work. Any failure to comply with the above might lead to rework and the cost for the same shall be borne by the contractor only. BHEL engineer, depending upon the availability of materials, fronts etc., will decide the sequence of erection and methodology. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the method of erection adopted in erection of similar jobs or for any reason whatsoever.

**2.22** In case of non-completion of work within contractual period and non-finalization of delay analysis for further extension, BHEL at its discretion may provide provisional time extension by withholding 10% of running bill amount during extension period till regularisation of time extension to secure the applicability of LD (if any).

**2.23** Contractor has to deploy **04 nos. of Safety personals** at site, within 15 days, as and when intimated by BHEL. This deployment shall be over and above the requirement as per Health and safety Environment plan. The deployed manpower shall report to BHEL and may be deployed at any location within the plant. BHEL shall make payment (separate item rate under section C) on pro rata monthly basis on actual deployment at the rate of Rs. 26,500/- per person per month (considering 26 working days in a month). In case the contractor does not deploy or delays deployment of above said manpower with reference to specific instructions from BHEL, BHEL will levy penalty of Rs. 100 per person per service day, for delay. PVC shall not be applicable for the payment against deployment of Safety personals at site.

**2.24** Contractor has to deploy **sufficient numbers of Quality personals** at site, within 15 days, from the date on which requirement is mentioned in Contractor performance review (F-14). In case the contractor does not deploy or delays deployment of above said manpower with reference to specific instructions from BHEL, BHEL will levy penalty of Rs. 100 per person per service day, for delay.

**2.25 PACKAGES: For Ease of operation of the scope of work, the subject work is divided into Three (03) nos. of Packages mentioned hereunder:**

**Package A:** Main power House Structure of Unit 1 & 2 (incl CCR), Mics Structure and thier auxiliaries

**Package B:** Ash Handling plant structure, FGD Structure, Tanks fabrication, Mics Structure and thier auxiliaries.

**Package C:** Coal Handling plant structure, Mics Structure and thier auxiliaries.

### Note:

- 1. Package A, B & C:** Each package shall be treated separately. For each item, item rate shall be derieved. Payment shall be made on actual execution of work on item rate basis.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-II: Scope of Work

2. In case of any dispute in scope of work between the packages, BHEL Site incharge decision shall be final and binding to the agency.

### 2.26 Bidders are requested to specifically note the following:

*Bidders are requested to have **pre-bid visit/ inspection of site** to make them fully acquainted with the site situation & nature of job. No claim shall be entertained at later date on account of non-familiarization of site conditions. Bidders may fix up their site visit in consultation with below mentioned contact person:*

Sh S K Kodape BHEL Site Office: 2x660 MW Talcher TPS Email: <a href="mailto:skkodape@bhel.in">skkodape@bhel.in</a> Ph. No: +91-94049 50599	Sh P Vishwakarma PSWR Nagpur Email: <a href="mailto:pvishwakarma@bhel.in">pvishwakarma@bhel.in</a> Ph. No: +91-7447791191
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# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

### 3.0 Facilities in the scope of Contractor/BHEL:

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
<b>3.1</b>	<b>Establishment:</b>			
<b>3.1.1</b>	<b>For Construction Purpose:</b>			
a	Open space for office (as per availability)	Yes		Location will be finalized after joint survey with owner
b	Open space for storage (as per availability)	Yes		Location will be finalized after joint survey with owner
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipments, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc		Yes	
f	Firefighting equipments like buckets, extinguishers etc		Yes	
g	Fencing of storage area, office, canteen etc of the bidder		Yes	
<b>3.1.2</b>	<b>For living purpose of the bidder:</b>			
a	Open space for labour colony (as per availability)		Yes	Contractor has to make his own arrangements for labour accommodation. Transportation of labours shall be in Contractor scope.
b	Labour Colony with internal roads, sanitation, complying with statutory requirements.		Yes	Construction Plan shall be approved by BHEL.
<b>3.2</b>	<b>Electricity:</b>			



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
<b>3.2.1</b>	<b>Electricity for construction purposes 3 Phase 415/440 V</b>			
a	Single point source	Yes		Free of cost at one point near the site at a distance of approx. 500 meter. Further distribution and Metering is in scope of bidder.
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
<b>3.2.2</b>	<b>Electricity for office, stores, canteen etc. of the bidder.( Chargeable )</b>			
a	Single point source	Yes		Chargeable basis. Single point as above for construction purpose, no separate point shall be given. Metering is in scope of bidder.
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
<b>3.2.3</b>	<b>Electricity for living accommodation of the bidder's staff, engineers, supervisors etc.</b>			
a	Single point source		Yes	No separate point shall be given.
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
<b>3.3</b>	<b>Water Supply:</b>			

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
<b>3.3.1</b>	<b>For construction purposes: (free)</b>			
a	Making the water available at single point	Yes		Free of cost at one point near the plant boundary. Further distribution and Metering is in scope of bidder.
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
<b>3.3.2</b>	<b>Water supply for bidder's office, stores, canteen etc. ( Chargeable)</b>			
a	Making the water available at single point		Yes	Chargeable basis. Single point as above for construction purpose, no separate point shall be given. Metering is in scope of bidder.
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	Contractor has to make his own arrangements for distribution.
<b>3.3.3</b>	<b>Water supply for Living Purpose</b>			
a	Making the water available at single point		Yes	No separate point shall be given.
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	Contractor has to make his own arrangements for distribution.
<b>3.4</b>	<b>Lighting</b>			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3 At the construction site /area		Yes	
c	Providing the necessary consumables like bulbs, switches, etc. during the course of project work		Yes	
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	
3.5	<b>Communication facilities for site operations of the bidder</b>			
a	Telephone, fax, internet, intranet, e-mail etc.		Yes	
3.6	<b>Compressed air wherever required for the work</b>		Yes	
a	Supply of Compressor and all other equipments required for compressor & compressed air system including pipes, valves, storage systems etc.		Yes	
b	Installation of above system and operation & maintenance of the same		Yes	
c	Supply of the all the consumables for the above system during the contract period		Yes	
3.7	<b>Demobilization of all the above facilities</b>		Yes	
3.8	<b>Transportation</b>			
a	For site personnel of the bidder		Yes	
b	For bidder's equipments and consumables (T&P, Consumables etc.)		Yes	
3.9	Engineering works & Materials for construction:			
a	Providing the erection drawings for all the equipments covered under this scope	Yes		
b	Drawings for construction methods	Yes	Yes	In consultation with BHEL

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

Sl. No	Description  PART I	Scope		Remarks
		BHEL	Bidder	
c	As-built drawings – where ever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes		Yes	In consultation with BHEL. Changes are to be marked in drawing & handover to BHEL on completion of work.
d	Shipping lists etc for reference and planning the activities	Yes		In consultation with BHEL
e	Preparation of site erection schedules and other input requirements		Yes	In consultation with BHEL
f	Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly erection schedules based on SL No. e		Yes	In consultation with BHEL
h	Daily erection / work plan based on SL No. g		Yes	In consultation with BHEL
i	Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested that this review by the senior official of the bidder, should be done once in every two months.		Yes	
j	Preparation of preassembly bay		Yes	
L	Arranging the materials required for preassembly		Yes	
M	COVID-19 PREVENTIVE MEASURE		Yes	

### 3.10 General Scope:

- 1 Furnishing all labour, materials, supervision, construction plans, equipment, supplies, transport, to and fro the site, fuel, electricity, compressed air, water, transit and storage insurance and all other incidental items and temporary works not shown on specified but reasonably implied or necessary for the proper completion, maintenance and handling over the works, except in accordance with the stipulations laid down in the contract documents and additional stipulations as may be provide by the engineer during the course of works.
- 2 Furnishing samples of all materials required by the engineers for testing/inspection and approval for use in the works. The samples may be retained by the engineer for final incorporation in the works.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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- 3 Furnishing test reports for the products used or intended to be used, if called for the specifications or if so desired by the engineer.
- 4 Giving all notices, paying all fees, taxes etc., in accordance with the general conditions of contract, that is required for all works including temporary works.
- 5 Arranging manufacturer's supervision for items of work done as per manufacturer's specifications when so specified.
- 6 The contractor shall provide the owner/BHEL such an assistance, instruments, machines, labour and materials as are normally required for examining, measuring and testing any work and the quality, weight or quantity of any material used.
- 7 Providing all incidental items not shown or specified but reasonably implied or necessary for the successful completion of the work in accordance with contract.
- 8 Arranging for joint checking (with BHEL / BHEL's Customer / Consultant) of all site construction activities Preparation of joint protocols for each & every activity and maintaining quality records for audit/inspection as per approved FQP by BHEL.
- 9 Contractor shall set up suitable storage facilities. Any wastage due to lapse of storing shall be debited to contractor.
- 10 The drawings enclosed with this tender are intended to give the tenderer a general idea of the type and extent of work involved. The drawings are as such only indicative and not to be considered as the exact construction drawings.

Further this is to be noted that the drawings and the documents furnished along with this specification are the sole property of BHEL. It must not be used directly or indirectly in any way detrimental to the interest of the company.

- 11 **BHEL at its discretion may include other area works, limited to 15% of awarded contract value, although not be specially mentioned in above scope of works. All such incidental works not specified but reasonably implied and necessary for completion of the project as a whole, contractor shall execute the works as desired and as directed by BHEL engineer which is binding on the contractor. The item rates & contract conditions shall remain unchanged for such works.**
- 12 The scope of work will also include such other related works although they may not be specifically mentioned above and all such incidental items not specified but reasonably imply and necessary for completion of the job as a whole all as desired and as directed by the engineer.
- 13 The detail scope of work covered above is not a comprehensive list of items of work involved. The detail scope of work may vary considerably depending on the actual requirements.
- 14 **Labour and Staff Colony:** The following are in the Bidder's scope of work for labour & staff colony:

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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- Development of Bidders temporary staff colony and labour colony having adequate no. of rest rooms along with toilets & fencing etc. (**enclosing drawing for ready reference Annexure-4: Labour Colony drawing**).
- Contractor has to arrange the land for labour colony.
- All Civil and Structural work associated with drinking and service water for Bidder's labour and other personnel at the work site/colony/offices including pump houses, pipes, overhead tank, tube wells etc.
- Providing and maintaining facilities for safety, welfare, drinking water and sanitation, hygiene, biennial health check-up etc. for construction workers at their workplaces as well as at labour & staff colonies.
- The facilities for occupational safety, healthy environment, first aid, drinking water, resting place & toilets, canteen, crèche, etc. shall be provided at the workplace for construction workers by the contractor.
- Development and maintenance of above facilities for construction workers hired by the Contractor shall solely rest with the Contractor.
- Contractor shall be responsible for maintenance of Labour colony. Contractor shall dismantle the labour colony after the completion of contract.

### 3.11 Preamble for the schedule of quantities/BOQ:

- Details of the items in this Schedule shall be read in conjunction with the Corresponding Consultants/ NTPC specifications, drawings and other documents and shall have precedence over any contrary statement mentioned anywhere in this document.
- The work shall be carried out as per construction drawings, specifications, the description of the items in this schedule and/or Engineer's instructions, Drawings enclosed with these documents are only indicative giving some idea of the type of work involved.
- Items of work provided in this schedule but not covered in the specifications shall be executed strictly as per instructions of the Engineer.
- Unless specifically mentioned otherwise in the contract, the bidder shall quote his price for the finished items and shall provide for the complete cost towards fuel, tools, tackle, equipment, temporary works, labour, materials, levies, taxes, transport, repairs, rectification, maintenance till handing over, supervision, shops, establishments, services, temporary approach roads, revenue expenses, contingencies, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the works according to the contract.
- The quantities of the various items mentioned in the schedule are approximate and may vary up to any extent or be deleted altogether. The overall variation in contract value on execution shall be dealt as per GCC. Contractor has to obtain prior approval of BHEL/ NTPC before procurement of bought out items/ materials.
- Engineer decision shall be final and binding on the contractors regarding clarification of items in this schedule with respect to the other section of the contract.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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➤ In case of any discrepancy between item description, relevant drawing and/or specification, clarification shall be sought at tender stage itself. Otherwise it shall be assumed that the bidder has quoted for the more stringent requirement.

### 3.12 Construction Power (Provided by BHEL free of cost for Construction purpose only):

1. Construction power (three phase, 415 V/ 440 V) will be provided free of cost at one point near the site at a distance of approx. 500M. Further distribution shall be arranged by the contractor at his own cost and services. Contractor shall be responsible for fulfilment of all requirements including statutory requirements in this regard. Contractor shall deploy and install required energy meter, cables, fuses, distribution boards, switchboards, bus bars, earthing arrangements, protection devices and any other installation as specified by statutory authority/act. Contractor shall also obtain approvals of appropriate authority and pay necessary fees, levies etc towards the clearance of such installations, prior to use. Sufficient power factor compensation equipments like capacitor shall be provided by contractor for reactive loads like welding machines etc. In case of any fine/penalty on account of low power factor, same shall be shared by contractor proportionately according to power consumption.
2. Contractor shall make necessary arrangements for onward distribution of construction power taking due care of surrounding construction activities like movement of cranes & vehicles, civil work, fabrication/construction/assembly/erection etc and safety of personnel. It may become necessary to relocate some of the installations to facilitate work of other agencies or himself.
3. It shall be the responsibility of the Contractor to provide, maintain the complete installation on the load side of the supply with due regard to the safety requirements at site. All cabling and installations shall comply in all respects with the appropriate statutory requirements. The installation and maintenance of this shall be done by licensed and experienced electrician.
4. While reasonable efforts will be made to ensure continuous electric power supply, interruptions cannot be ruled out and no claim from the Contractor shall be entertained on this account such as idle labor, extension of time etc. The Contractor shall adjust his working shift accordingly and deploy additional manpower, if necessary, so as to achieve the target.
5. Contractor to note that till construction power is made available by BHEL (approx. within 3 months from start of work); contractor shall make his own arrangement like DG set etc. The contractor shall also take the approval/ permission of statutory authorities for his DG set installation. The Contractor has to make his own arrangement for the same as required to carry out the job under the scope of work within the quoted rate. Nothing extra shall be paid on this account of DG set up and running for construction and office maintenance etc.
6. Contractor shall be well equipped with back-up power supply arrangement like DG set etc. to tackle situations arising due to failure of supplied power, so as to ensure



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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- continuity in Operation of Batching Plant etc. that are underway at the time of power failure or important activities planned in immediate future.
7. BHEL is not responsible for any loss or damage to the Contractor's equipment as a result of variations in voltage or frequency or interruptions in power supply.
  8. **Contractor is advised to maintain the calibrated energy measuring instruments and use their system as efficiently as possible to maintain the HT side input energy meter reading and LT side outgoing energy meter reading to sub-contractors as equal.**
  9. The bidder will have to Procure & install General mobile illumination system during construction right from start of his work. This system will include temporary pole lighting, portable lighting towers with DG back-up, within the quoted price. The illumination should be such that minimum illumination requirement as specified by Indian standards for general illumination is maintained.
  10. Contractor to arrange energy meter for office.

### **General:**

If any other voltage level (other than normally available) is required, the same shall be arranged by the contractor from power supply as above. Contractor will have to provide at his own cost necessary calibrated energy meters (tamper proof, suitably housed in a weather proof box with lock & key arrangement) at point of power supply along with calibration certificate from authorized/ accredited agency for working out the power consumption. In case of recalibration required for any reason the necessary charges including replacement by calibrated meters is to be borne by the contractor. Supply of electricity shall be governed by Indian Electricity Act and Installation Rules and other Rules and Regulation as applicable. The contractor shall ensure usage of electricity in an efficient manner and the same may be audited by BHEL time to time. In case of any major deviation from normally accepted norms is observed, BHEL will reserve the right to impose penalty as deemed fit for such cases.

Contractor to arrange calibrated energy meter (tamper proof, suitably housed in a weather proof box with lock & key arrangement) **for office** and this construction power at office is chargeable as per applicable tariff rates.

### **3.13 Construction water (Free of cost):**

Construction water will be provided free of cost at one point near the plant boundary. Bidder has to make arrangement of further distribution of water at his own cost. No extra payment shall be made under this account. The agency should also construct a sump of suitable size for storage of construction water as per their site requirement for use in construction purposes.

However, drawal of construction/potable water from bore-well shall be permitted if found suitable. Any statutory clearance required shall be obtained by the contractor.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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### 3.14 Field Quality Assurance:

The contractor shall be responsible for day-to-day quality checks of activities during the progress of work. All quality records and log sheets shall be maintained as per the requirement of BHEL/BHEL'S customer and as per field quality plan approved by BHEL/ BHEL'S customer.

### 3.15 DRINKING WATER

Bidder shall provide drinking water at the work spot at their cost.

### 3.16 Supervisors and Computer for exclusive use of BHEL:

- (a) The successful bidder(s) will have to provide **Four (04) supervisors (MIN. Qualification: Diploma in Mechanical/Production/ Industrial Engineering)** acceptable to BHEL Site with sufficient computer knowledge (knowledge of MS office) to whom works will be assigned in consultation and acceptance of BHEL for original contract period.
- (b) The bidder will have to provide **Four (04) Nos.** of Laptops (X-86 Architecture Based, 64-Bit Supported, Microprocessor with minimum minimum 8 cores, Onboard Graphics feature compatible with supplied OS, Minimum 8 GB RAM 2666 MHZ SDRAM upgradeable to 16 GB, 512 GB SSD M.2 Hard Drive or higher, 13" - 14" (both included) high definition anti-glare LED back lit Screen, OEM USB Optical Travel Mouse, Integrated High definition audio with integrated speakers and volume control (Hardware/Software). Single audio jack (single pin) for connecting ear phones and mic, Built-In HD Webcam with Built-In Microphone, integrated 100/1000 Mbps port, Integrated Wi-Fi 6, supporting industry standard IEEE 802.11ax + Bluetooth 5.0 or higher, Minimum 2 xUSB 3.1 Ports, 1 x Type C, Stereo headphone/ microphone combo jack, 1 x HDMI Port. 1 x RJ – 45, Minimum 3-cell battery capable of providing 6 hours or more backup in standard business environment, ACPI Compliant, OEM AC Adaptor suitable for 230V supply, Should come pre-installed with Windows 11 Professional Edition or latest version with 64bit latest service pack, OEM carry bag to be supplied with OS Certification from Microsoft and required software like MS Office 2010 Professional, AutoCAD 2011, ADOBE PDF CREATOR (version 8.0) with one laser jet printer compatible for A4 and A3 size printing (ink/ cartridge for which to be supplied as and when required, (the consumption may be assumed as 1 cartridge per month) with power backup at places, as per instruction of BHEL.
- (c) These laptops/ printers along with supervisors shall remain contractor's property/ownership for all legal/technical purposes. However, contractor will be allowed to take out the same after completion of the site works. However, the computer/printer along with technical supervisor shall remain at BHEL offices.
- (d) These facilities have to be provided from 3<sup>rd</sup> month from LOI date/ **as instructed by BHEL** till completion of site works or till the date as decided by BHEL.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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- (e) If contractor fails to provide computer/ printer as per requirement, for a continuous period of fifteen days or more, BHEL shall have the right to purchase it at risk and cost of bidder.
- (f) BHEL shall make payment (separate item rate under section C) on pro rata monthly basis on actual deployment of manpower along with aforementioned facilities, at the rate of Rs. 26,500/- per person per month (considering 26 working days in a month). In case the contractor does not deploy or delays deployment of above said manpower with reference to specific instructions from BHEL, BHEL will levy penalty of Rs. 100 per person per service day, for delay.

### 3.14 CONSUMABLES:

- 3.14.1 Such of those consumables as indicated as consumables provided by BHEL alone will be provided to the contractor by BHEL free of charge for erection activities. Other required consumables like electrodes, all gases, and other materials for this scope of work are to be arranged by the contractor at their cost.
- 3.14.2 All the required electrodes (in his scope) as approved by BHEL shall be arranged by contractor at his cost. It shall be the responsibility of the contractor to obtain prior approval of BHEL, before procurement regarding, suppliers, type of electrodes etc. On receipt of the electrodes at site, it shall be subject to inspection and approval by BHEL. The contractor shall inform BHEL details regarding type of electrodes, batch number and date of expiry etc.
- 3.14.3 The contractor shall provide within finally accepted price / rates, all consumables like welding electrodes (including alloy steel and stainless steel), all gases (inert, welding, and cutting), soldering material, dye penetrants, radiography films. Other erection consumables such as tapes, 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&S, packers, shims, wooden planks, scaffolding and pre-assembly materials (**structural steel, concrete sleeper, concrete blocks etc**) hardware items etc. required for temporary works such as supports, scaffoldings, **pre-assembly bed etc.** are to be arranged by agency.
- 3.14.4 Sealing compounds and GI wires for insulation mattress binding shall be provided by the agency with in the coated price/rates.
- 3.14.5 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.
- 3.14.6 All the shims, gaskets and packing, which go finally as part of equipment, shall be supplied by BHEL free of cost.

### 3.16 LIGHTING FACILITY:

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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

### **3.17 GASES:**

- 3.17.1 All the required gases like Oxygen / Acetylene / argon / Nitrogen required for work shall be supplied by the Contractor at his cost. It shall be the responsibility of the contractor to plan the activities and store sufficient quantity of these gases. Non availability of gases cannot be considered as reason for not attaining the required progress. BHEL reserves the right to reject the use of any gas in case required purity is not maintained.
- 3.17.2 The contractor shall submit weekly / fortnightly / monthly statement report regarding consumption of all consumables for cost analysis purposes.
- 3.17.3 The contractor shall ensure safe keeping of the inflammable cylinder at a separate place away from normal habit with proper security etc.
- 3.17.4 BHEL reserves the right to reject the use of any gas in case required purity is not maintained.

### **3.18 ELECTRODES SUPPLY AND STORAGE**

- 3.18.1 The bidder shall use the BHEL / Customer approved quality welding electrodes only.
- 3.18.2 It shall be the responsibility of the contractor to obtain prior approval of BHEL, before procurement, regarding suppliers, type of electrodes etc. On receipt of the electrodes at site, it shall be subject to inspection and approval by BHEL. The contractor shall inform BHEL details regarding type of electrodes, batch number and date of expiry etc.
- 3.18.3 Shortage of any of the electrodes or the equivalent suggested by BHEL shall not be quoted as reason for deficiency in progress or for additional rate.
- 3.18.4 Storage of electrodes shall be done in an air conditioned / controlled humidity room as per requirement, at his own cost by the contractor.
- 3.18.5 All low hydrogen electrodes shall be baked / dried in the electrode drying oven (range 375 deg. C - 425 deg. C) to the temperature and period specified by the BHEL Engineer before they are used in erection work and each welder should be provided with one portable electrode drying oven at the work spot. Electrode drying oven and portable drying ovens shall be provided by contractor at his cost.
- 3.18.6 **In case of improper arrangement of procurement of above electrodes BHEL reserves the right to procure the same from any source and recover the cost**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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**from the contractor's first subsequent bills at market value plus departmental charges of BHEL communicated from time to time. Postponement of such recovery is not permitted.**

3.18.7 BHEL reserves the right to reject the use of any electrodes at any stage, if found defective because of bad quality, improper storage, date expiry, unapproved type of electrodes etc. It shall be the responsibility of the contractor to replace at his cost without loss of time.

### 3.19 OTHER FACILITIES

3.19.1 **Adequate water less/Bio urinals (at least 4 nos. in alternate levels/locations)** shall be arranged by the contractor within quoted rates, at site of construction at different level and different areas with proper disposal arrangement.

3.19.2 Vendors have to comply requirements of HSE & Statutory requirement in line with BHEL HSE plan, NTPC Safety requirement, State/Central statutory requirement.

3.19.3 Preparation of method statement, HIRA, Job Safety analysis, permit to work, Lifting plans, and all supporting documents as required for starting & continuation of work/job is in vendor's scope.

3.19.4 **Hydras are not allowed for materials transport, only pick and carry cranes to be deployed by the agency.**

3.19.5 Scaffolding pipes, clamps, safety nets, floor grills for working platforms are to be made of good quality with proper certifications as per IS Codes.

### 3.20 SITE ORGANISATION

3.20.1 The contractor shall provide adequate staffing in the following areas in addition to the staffing requirements of execution as instructed/informed by BHEL:

- i. Overall planning, monitoring & control.
- ii. Quality control and quality assurance.
- iii. Materials management.
- iv. Safety, fire & security.
- v. Industrial relations and fulfilment of labour laws and other statutory obligations.

3.20.2 The contractor shall maintain a site organization of adequate strength in respect of manpower, construction machinery and other implements at all times for smooth execution of the contract. This organization shall be reinforced from time to time, as required to make up for slippage from the schedule without any commercial implication to BHEL. The site organization shall be headed by a competent construction manager having sufficient authority to take decisions at site.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III: Facilities in the scope of Contractor/BHEL (Scope Matrix)

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3.20.3 The contractor should also submit to BHEL for approval a list of construction equipment, erection tools, tackle etc. prior to commencement of site activities. These tools & tackles shall not be removed from site without written permission of BHEL.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

4.1 The following **Major Tools & Plants** (T&P) shall be arranged by the Contractor for execution of work as per Technical Conditions of Contract of this tender within the quoted rate.

### For Package A:

S.N.	DESCRIPTION OF MAJOR T&Ps	CAPACITY	QUANTITY	REMARKS
1.	Crawler Crane	150 MT	01 No.	Crane to be made available as per instruction from BHEL Site incharge
2.	Crawler/Tyre mounted crane	75 MT	02 Nos.	Crane to be made available as per instruction from BHEL Site incharge
3.	Backhoe Loader/JCB	Appropriate capacity	01 no.	T&P to be made available as per instruction from BHEL Site incharge

### For Package B:

S.N.	DESCRIPTION OF MAJOR T&Ps	CAPACITY	QUANTITY	REMARKS
1.	Crawler Crane	150 MT	01 No.	Crane to be made available as per instruction from BHEL Site incharge
2.	Tyre mounted crane	75 MT	01 Nos.	Crane to be made available as per instruction from BHEL Site incharge
3.	Man lifter	min. 40mtr height capacity	01 Nos.	T&P to be made available as per instruction from BHEL Site incharge

### For Package C:

S.N.	DESCRIPTION OF MAJOR T&Ps	CAPACITY	QUANTITY	REMARKS
1.	Crawler Crane	150 MT	01 No.	Crane to be made available as per instruction from BHEL Site incharge
2.	Tyre mounted crane	75 MT	01 Nos.	Cranes to be made available as per instruction from BHEL Site incharge.

### Note:

- Contractor shall mobilise aforementioned cranes/T&Ps at site, in case stated capacity crane could not be made available, for any reason what so ever, a higher capacity crane shall be mobilised by the contractor without any extra cost.
- Separate item is made for making payment against actual deployment of Backhoe Loader/JCB and Man lifter at site.
- Mobilization and de-mobilization of Major T&Ps shall be as per instruction of BHEL. Agency shall Mobilize / de-mobilize the Major T&Ps as per BHEL instruction without any extra cost to BHEL.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

4. The aforementioned Cranes/T&Ps, Manfilter, JCB etc shall be shared for execution of work in Package A, B & C.

4.2 The following **Other Tools & Plants** (T&P) shall be arranged by the Contractor for execution of work under Package A, B & C as per Technical Conditions of Contract of this tender within the quoted rate. Nos. of T&Ps to be deployed at site shall be decided w.r.t. monthly plan and review format (F-14) based on site requirement. Below given Nos are tentative for planning purposes by the bidder.

SN	DESCRIPTION OF OTHER T&Ps	CAPACITY (MINIMUM)	MINIMUM QUANTITY	REMARKS
1.	Tyre mounted mobile crane	35/40 MT	As per requirement	As per requirement
2.	Tyre mounted mobile crane	18/20 MT	As per requirement	As per requirement
3.	Tyre mounted mobile crane	10/12/14 MT	As per requirement	As per requirement
4.	Trailer with prime mover	20 MT	As per requirement	As per requirement
5.	Trailer with prime mover	40 MT	As per requirement	As per requirement
6.	Calibrated Power driven HSFG bolt tightening machines	As per Requirement	20 Nos	As per Site requirements,
7.	Torque tightening machine	As per Requirement	12 Nos	Incl 02 nos of capacity of 30 Dia HSFG bolt tightening.
8.	Sufficient quantity of steel ladders for approach up to the top of each erected column to be required during erection of columns.	As per Requirement	As per Requirement	As per work requirement at site
9.	Tig welding set	As required	As required	As per requirement.
10.	Oxy Acetelyne Gas cutting Machine		Adequate nos.	
11.	DC arc welding machine		As required.	
12.	3-phase distribution board with complete set up for drawl of construction power	As required	As required	
13.	Power cable for drawl of construction power	As required	As required	



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

SN	DESCRIPTION OF OTHER T&Ps	CAPACITY (MINIMUM)	MINIMUM QUANTITY	REMARKS
14.	Theodolite of required accuracy	To ensure verticality of structural columns.	04 Nos.	Required Since Erection start.
15.	<b>Self-drilling cum tapping machine for screws of PH roof &amp; Cladding sheets and Deck Sheet</b>	As required	(As required)	
16.	Welding rectifiers (electrical)		As required	Since erection start
17.	Chain pulley blocks of various & Suitable capacities		As Required ( as per the instructions of BHEL Engineer)	Since erection start
18.	Baking oven with thermostat and temperature gauge for welding electrodes	As required	(As per Required)	Since erection start
19.	Holding oven with thermostat and temperature gauge for welding electrodes	As required	(As per Required)	Since erection start
20.	Portable oven for welding electrodes	As required	(As per Requirement)	Since erection start
21.	Electric winch	3 MT ton capacity	As per requirement	
22.	Electric winch	5 MT ton capacity	As per requirement	
23.	Hand winch	0.5 ton capacity	As per requirement	
24.	Scaffolding materials with clamps.	Suitable for working at various heights	As required	For Alignment, welding & Insulation works
25.	Profile making m/c	For aluminium sheet cladding work	as required	
26.	Portable grinding m/c	As required	as required	Since structure erection start
27.	Portable drilling m/c	As required	as required	Since structure erection start
28.	Hoisting and pulley devices/pulleys	Assorted capacities	As required	Since erection start



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

SN	DESCRIPTION OF OTHER T&Ps	CAPACITY (MINIMUM)	MINIMUM QUANTITY	REMARKS
29.	Fire retardant tarpaulins	As required	As required	Since erection start
30.	Fire extinguisher	As required	as required	
31.	Hydraulic Jacks	10/20/50/100 MT	as required	
32.	Dewatering pumps(Electrical & Diesel engine operated)		as required	
33.	Various sizes of clamps/ fixtures for assembling		as required	
34.	Magnetic particle testing equipment-DRY & WET Type		as required	
35.	Elcometer for paint thickness checking		as required	
36.	Hand Operated Megger 500 / 1000 V		as required	
37.	Tong Tester 10, 20 Or 50 Amp + / - 3 % Accuracy		as required	
38.	Digital and Analogue Multimetres		as required	
39.	Special Slings for Erection of Ceiling Beams & other heavy components		as required	Since PH erection start
40.	Pug Cutting machines		As required	
41.	Portable drill machines		As per requiremnt	
42.	Air compressor/ Ar blower		02 Nos	
43.	Concrete Blocks		As required	For making bed of steel structure for checking dimensional accuracy, configuration and minor rectification.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

SN	DESCRIPTION OF OTHER T&Ps	CAPACITY (MINIMUM)	MINIMUM QUANTITY	REMARKS
44.	Wooden/concrete sleeper 1.5 Mtr length	Since beginning	As required	For material storage at site.
45.	Painting equipment sets complete with compressor, hopper, screen, blasting hose pipe, nozzle airless / conventional spray (within CGI temporary cover shed)	As per site requirements		As per site requirements, (As described in chapter of "Painting".
36.0	<b>List of suggestive safety Equipment/PPEs to be included in List of minimum T&amp;P:</b>		<b>In line with HSE Manual</b>	
37.0	Safety Net (Conforming IS 11057:1984) Safety Net (Net Size: 10m x 5m, Mesh Size: 25 mm, Mesh Rope: 2mm double cord, Border/Tie Cord: 12mm diameter polypropylene rope (tested as per IS: 5175).Two metres length shall be provided at all four corners.		As Per Requirement	Required Safety nets shall be deployed as per site requirement .
	Fall Arrester 'Rope grab fall arrester' & anchorage line. Anchorage Line: 14mm- 16 mm diameter, three strand twisted Polyamide rope.	Rope Grab Fall arrester' and Karbiner each.	As per site requirement	
	Rope Grab fall arrester: Openable & Guided type Fall Arrestor (on flexible line) conforming EN 353-2 & works on 14-16 mm diameter polyamide rope. Material: Nickel Chrome plated Steel	anchorage line, 30 metre long each,	As per site requirement	
	Connector: Karbiner conforming to EN 362 (Minimum Strength 22 KN), material: Steel	anchorage line, 40 metre long each	As per site requirement	
49.	<b>Horizontal life line</b> Stainless Steel Wire rope of		As per Requirement	Min 40 nos. of wire rope, each 40 metre long Min 90 nos. of

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

SN	DESCRIPTION OF OTHER T&Ps	CAPACITY (MINIMUM)	MINIMUM QUANTITY	REMARKS
	8mm diameter. Minimum six nos. of steel U-bolt clips are required for clamping each wire rope to a rigid support (03 nos. of U-bolt clips at each end).			wire rope, each 25 metre long.
50.	<b>Ladders on column</b> The minimum design live load on metallic ladder shall be a single concentrated load of 100 kilo grams. All rungs shall have a minimum diameter of 1.90 centimeters, and minimum clear length of rungs shall be 40.6 centimeters. The distance between rungs shall not exceed 30.5 centimeters. Each ladder shall have maximum height of 9.0 metre. The ladder shall have proper fastenings for attaching it to a column using positive means such as bolt, weld or other type of fasteners.	As per requirement	As per Requirement	
51.	Suspended working platform Size :7mX1mX0.5m, Rated load 800 kg to 1000 Kg,	As per Requirement	02 No	Prior to start of sheeting works.
52.	Portable Drilling machine	As per Requirement	02 Nos	Having capacity to drill hole sizes upto 32 mm.
53.	Shot blasting equipment required capacity	As per Requirement	As per Requirement	
54.	Spray painting equipment's required capacity	As per Requirement	As per Requirement	
55.	Drilling machine --- Magnetic type required capacity	As per Requirement	As per Requirement	
56.	Safety ladder for sheet laying	As per Requirement	As per Requirement	
57.	Welding quality control equipment such as MPI, LPI. R.T & U.T etc.	As per Requirement	As per Requirement	

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

### MEASURING AND MONITORING DEVICES (MMD):

As per requirement to be finalized at site, shall meet the requirements as per field quality plan and other Erection related activities.

#### NOTE:

- 1. All above T&Ps are to be deployed by contractor as and when required as per instruction of BHEL engineer. If works gets delayed due to non-availability of above T&Ps, BHEL reserves the right to deploy the same and recover the charges thereof from the contractor as per prevailing market rate/hiring rate/BHEL internal hiring rates + Applicable overhead rates.**
- 2. Hydras are not permitted for the scope of work. Contractor shall deploy and use pick & carry crane of TRX or equivalent type only for the above purpose.**
- 3. Tendum operation towards material handling is also not permitted in the project premises.**
4. 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.
5. Necessary electrical / water / air connection required for operation of any of the tools & tackles shall be to Contractor's account.
6. Contractor has to submit the Calibration certificates of all the precision Equipement to BHEL. BHEL may ask for recalibration of the MMEs /precision equipments for ensuring quality of work. Contractor must re-ascertain/ recheck range and accuracy of each IMTE from BHEL Engineer well in advance before arranging calibration/ deployment.
7. Any T&Ps, Cranes, Slings, D-shackles and other lifting tackles, Trailers (Low bed and normal) required for shifting of material from store to site shall be arranged by contractor over and above T&Ps/ crane provided by BHEL.
8. All Measuring and Monitoring Devices (MMD) used for the work in scope of these tender specifications shall be calibrated by the accredited agencies that are approved by BHEL or calibration tractability is established upto National Physical Laboratory.
9. Contractor has to arrange slings of all sizes for completing the works covered under these specifications except the special slings for generator stator lifting/handling, which will be provided by BHEL free of charges on returnable basis.
10. T&P and the mobilization shown in the above mentioned list is suggestive requirement considering parallel working in Main plant structural area. Mobilization schedule as mutually agreed at site for major T&Ps, have to be adhered to. Numbers / time of requirement will be reviewed time to time at site and contractor will provide required T&P / equipments to ensure completion of entire work within schedule / target date of completion without any additional financial implication to BHEL. Vendor will give advance intimation & certification

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

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regarding capacity etc. prior to dispatch of heavy equipments. Also on completion of the respective activity, demobilization of T&P in total or in part can be done with the due approval of engineer in charge. Retaining of the T&Ps during the contract period will be mutually agreed in line with construction requirement.

11. In the event of need of change of type of any of major T&Ps, approval shall be taken from BHEL Engineer in-charge prior to mobilization. The decision of Number of T&P required due to replacing the enlisted T&P as per above table, shall be taken after analyzing the production capacity and suitability of both the T&Ps.
12. The contractor shall submit the valid test certificate/calibration certificates for all the T&Ps before put into actual use at site. The certificates shall be renewed time to time as instructed by BHEL Engineer
13. Crane operators deployed by the contractor shall be offered for testing by BHEL before they are allowed to operate the cranes.
14. Crane operators deployed by the contractor shall have valid license for operation of cranes.
15. The above list as mentioned in S.No. 4.2 (Other that mentioned in S.No. 4.1 Major T&Ps) is only indicative and these T&Ps may not be required for entire contract period but contractor shall ensure the availability of the T&Ps as per work requirement and T&P Deployment schedule. T&P Deployment schedule shall be finalized at site in consultation with BHEL Engineer based on the work fronts/work requirement. BHEL decision shall be final and binding regarding the T&P deployment schedule. Contractor shall mobilize / maintain the T&P's as per the deployment schedule notified time to time by BHEL Engineer.
16. APR (As per Requirement)- Contractor has to deploy T&P, MMD, IMTE as per requirement of site and as decided by BHEL Engineer.
17. Apart from above mentioned T&P, any additional item required in addition to above mentioned T&P for proper execution of scope of work, contractor has to arrange such T&P within quoted rate on the instruction of BHEL in writing in a reasonable period within two weeks from the written instruction from BHEL.
18. T&P's mentioned above shall be specifically deploy as per the respective packages. However, as per work requirement and availability of T&Ps the inter use in Material Handling and Mechanical works may be permitted as per the instruction of the BHEL Engineer.
19. If the work related to T & Ps mentioned above is completed then, BHEL can release that T & P during contract period / extended period if any. However, written permission shall be taken by contractor from BHEL Construction Manager and gate pass formalities shall be followed by the contractor for releasing the T&P.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

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20. Filling pump, for hydro test shall be arranged by the contractor, if required. Necessary hydraulic test pumps/ hand pumps are to be arranged by the contractor.
21. In the eventuality of contractor not deploying / abnormal down time of T&P/cranes in his scope during the period specified above, and BHEL arranges for the same [BHEL's own cranes], prevailing BHEL Corporate Crane hire charges (which may vary from time to time) shall be recovered from the contractor's running bills. Corresponding pages of Corporate Crane hire charges are enclosed as part of VOL-I-E-2911 as File titled "**Annexure 1- BHEL T&P Hire Charges**". (Please note that these charges are as valid up to Aug, 2025 and may get revised further). In case BHEL arrange the T&P/Crane through hiring, actual hiring charges with 5% over head shall be recovered from the contractor's running bills.
22. The loading, unloading and transportation of contractors T&Ps shall be in the scope of contractor. All necessary items such as Trailers, Cranes, Winches, welding generators, slings, jacks, sleepers, rails etc., are to be arranged by the contractor at his own cost.
23. **All the T&Ps required for this scope of work, except the Tools & Plants mentioned in Chapter V of TCC: T&Ps to be provided by BHEL, are to be arranged by the contractor with in the quoted rates.**
24. All operators (for crane, winch etc.) deployed by contractor shall have valid licence from applicable authority (which ever applicable).
25. The contractor has to furnish a list of Tools and plants including cranes/ tractors/trailers/trucks etc. which he has proposed to deploy for this work.
26. The contractor shall arrange operator, diesel, petrol and other consumables required for the tools and plants, equipments etc. Preventive and routine maintenance of T & P are also to be arranged by the contractor at his cost without any delay. Required number of experienced mechanics and helpers for routine maintenance of the above cranes shall be provided by the contractor within his quoted rate.
27. **Heavy equipment will be tracked with real-time position location for fleet management. Deployment vs planned reports shall be generated. Equipment Condition monitoring data like Service Meter Reading, Operation maps, Loading, fuel levels, operating information, idle time etc. shall be captured. This data shall be captured through Integrated Online Project Monitoring system. All T&P equipment deployed by contractor will be covered/ monitored through this system. Minimum 5 signals per equipment should be made available to provide the input to Integrated Online Project Monitoring system. Necessary software/ hardware for aforesaid system shall be provided by BHEL.**
28. **All manpower hired/deployed by Contractor for this project shall be monitored through Integrated Online Project Monitoring system by BLE beacons & LoRa backhaul. Every personnel entering in to NTPC site premises for carry out any work shall be tracked. [Separate tagging for visitors]. Geo-fencing /BLE beacon based zoning of the**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: T&Ps and MMEs to be deployed by Contractor

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erection area shall be done to track workforce deployment and safety purposes. Work force monitoring Dash board (planned vs actual deployment) shall be made available. BLE beacons & LoRa backhaul shall be provided by BHEL on chargeable basis to contractor. BHEL will provide Tags free of cost for maximum 1500 workers, additional tags as required shall be provided by BHEL on chargeable basis @ Rs. 1000/- per tag. In case of damage or missing of issued worker tag, Rs. 1000/- per tag will be charged for issuing new worker tag.

**29. Medical/First aid center/medicine purchased for emergency/Doctor purpose along with ambulance services with fuel and operator (round the clock) shall be arranged by BHEL for handling medical emergencies on behalf of vendors. Cost, without any overheads, against these facilities shall be distributed/shared among the vendors working in Talcher Project site proportionately based on contract value. In case of any unforeseen eventuality with contractor's staff/labour held at Medical/First aid center, BHEL shall not be responsible.**

### NOTE:

The above list (other than mentioned in S.No. 4.1 of Chapter IV) is only indicative and neither exhaustive nor limiting. Quantities indicated above are only the minimum required. Contractor shall deploy all necessary T&P to meet the schedules & as prescribed by BHEL engineer and required for completion of work. In the event of non-mobilization of any T&P by the successful bidder and as a result if progress of work gets suffered, BHEL reserves the right to deduct suitable amount from the dues of the bidder, without assigning reasons thereof.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-V: T&Ps AND MME TO BE DEPLOYED BY BHEL ON SHARING BASIS

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

SL NO	DESCRIPTION & CAPACITY OF T&P	QUANTITY	REMARKS
1	Cranes	As decided by BHEL	All cranes ( <b>except Contractor scope</b> ), if required for mentioned work, will be arranged by BHEL as per requirement.

- 5.1 All the T&Ps mentioned in clause 5.1 above shall be given to contractor on sharable basis and the allotment is made by BHEL on need basis. Contractor shall plan activities well in advance and inform BHEL Engineer in charge/ Construction Manager the date of actual use. The decision of BHEL Engineer in-charge/CM on this will be final and binding.
- 5.2 Contractor shall transport from BHEL stores, install, operate, carry out maintenance, dismantle after use and return to BHEL stores all T&Ps mentioned in Sr no 5.1 for his use.
- 5.3 Cranes provided by BHEL are only for erection purpose and shall not be available for material handling or transportation purpose. Contractor shall make their own arrangements for material transportation to erection site.
- 5.4 All the distribution boards, connecting cables, hoses etc., and temporary connection work including electrical connections for the BHEL issued T&Ps shall have to be arranged by the contractor at his cost.
- 5.5 The contractor at his cost shall arrange for grouting of anchor points of T&Ps issued to agency. Necessary grout materials are to be arranged by the contractor at his cost.
- 5.6 The day-to-day and routine maintenance including replacement of spares for the BHEL T&Ps will be carried out by the contractor at his own cost. However, BHEL shall supply spare parts free of charges for normal wear and tear only.
- 5.7 Any loss/damage of tools by the contractor shall have to be replaced or otherwise cost thereof shall be recovered from the contractor.
- 5.8 The contractor shall make necessary arrangement like laying of special sleeper beds, assembly & dismantling of heavy lift attachment, boom, jib etc. for movement and operation of crane.
- 5.9 The contractor at his cost shall arrange for grouting of anchor points of T&Ps issued to him. Necessary grout materials are to be arranged by the contractor at his cost.
- 5.10 The day-to-day and routine maintenance including replacement of spares for the BHEL T&Ps will be carried out by the contractor at his own cost. However, BHEL shall supply spare parts free of charges for normal wear and tear only.
- 5.11 Any loss/damage of tools by the contractor shall have to be replaced or otherwise cost thereof shall be recovered from the contractor.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-V: T&Ps AND MME TO BE DEPLOYED BY BHEL ON SHARING BASIS

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**Note: For BHEL Owned or hired Crane:**

1. The cranes may be BHEL owned or may be obtained on hiring basis including operating and maintenance crew.
2. Operator and O&M for BHEL owned crane will be provided by BHEL.
3. Contractor shall provide the fuel for BHEL provided cranes (Hired/owned) for his use.
4. Contractor shall make necessary arrangements like laying of special sleeper beds and steel plates (**Plates & sleepers for BHEL owned/hired cranes shall be provided by the BHEL**), assembly and dismantling of heavy attachment, boom, jib etc. for movement and operation of the crane. Contractor shall provide necessary manpower assistance for initial and final assembly & dismantling and for subsequent operations of boom extension and reduction during execution of work. Levelled area will be provided by BHEL/customer for the cranes. Consolidation of the ground, if required (Area required for movement of crane), and preparation (including civil work with material) for placing crane for operation shall be done by the contractor, at his cost. Necessary plates / sleepers required for marching operation shall also be provided by the BHEL only for BHEL owned cranes.
5. Cranes provided by BHEL will be on sharing basis with other agencies / contractors of BHEL. The allocation of cranes shall be the discretion of BHEL engineer, which shall be binding on the contractor. Cranes will be deployed at appropriate time as decided by BHEL for suitable duration and intended purpose. Augmentation of BHEL T & P under special circumstances shall be discretion of BHEL.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VI: Time Schedule

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### 6. TIME SCHEDULE & MOBILIZATION

#### 6.1 Initial Mobilization and Time Schedule:

After issue of LOI (though Fax/courier/email) the contractor shall report to the Construction Manager/Site In-Charge of BHEL at site within two weeks and make a MOM (Minutes of meeting) for mobilization of manpower, T&Ps, date of start of work and detailed completion program. Such resources shall be progressively augmented to match the overall schedule of milestones and commissioning and the entire works (including Package A, B & C) are completed within the contract period of **32 (Thirty-Two) Months** from the date of start of work in a manner required by BHEL to match with the project schedule.

#### 6.2 MOBILIZATION FOR ERECTION, ASSISTANCE FOR COMMISSIONING ETC.

The activities for Erection etc. shall be started as per directions of Construction Manager of BHEL. Contractor shall mobilize further resources as per requirement to commence the work of Erection and progressively augment the resources to match schedule of the project.

6.2.1 The contractor shall have to mobilize his resources earlier than the start of contract period for preparatory work like taking over and chipping of foundations, blue-matching, grouting of packer plates etc. and start of pre-assembly. The contractor shall complete all the works in the scope of this contract within the contract period. Pending points identified by the customer/BHEL during the execution of the contract are to be liquidated during the contract period itself.

6.2.2 Based on the availability of civil foundations from BHEL and materials from manufacturing agencies, contractor may have to advance the start of erection after getting clearance from construction manager, or the start of erection may get delayed due to site condition.

#### 6.3 COMMENCEMENT OF CONTRACT PERIOD AND TENTATIVE SCHEDULE

**Erection/placement on its designated foundation / location, of the first major permanent equipment / component / column covered in the scope of these specifications, (whichever is earlier as decided by BHEL) shall be recognized as "Start of contract period" for Each Package.** Smaller items like packer plates, shims, anchors, inserts etc. will not be considered as start of contract period. The date of Start of contract period shall be the mutually agreed date between the bidder and BHEL engineer to start the work. In case of discrepancy, the decision of BHEL engineer is final.

Based on the availability of civil foundations from BHEL and materials from manufacturing units, contractor may have to advance the start of erection after getting clearance from Construction Manager, or the start of erection may get delayed due to site conditions.

#### 6.4 CONTRACT PERIOD

The contract period for completion of entire work under scope shall be as mentioned hereunder, from the "START OF CONTRACT PERIOD" as specified earlier for completion of the entire work in respective Package.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VI: Time Schedule

S.No.	Package	Contractual Schedule (Month)
1.	<b>Package A:</b> Main power House Structure and thier auxiliaries	28 Months
2.	<b>Package B:</b> Ash Handling plant structure, FGD Structure, Mics Structure and thier auxiliaries.	28 Months
3.	<b>Package C:</b> Coal Handling plant structure, Mics Structure and thier auxiliaries.	32 Months

The Contractor has to subsequently augment his resources in such a manner that following major milestones of erection & commission are achieved on specified schedules. The schedule of important milestones is as follows:

### For Package A:

SL No.	Milestones	Completion Months
1	Unit 1 EL(+) 28.85 M Structure clearance for EOT Erection	5 <sup>th</sup> Month
2	Structural readiness of GIS building	6 <sup>th</sup> Month
3	Unit 1 EL(+) 8.50 M Floor Structure clearance for floor casting/ Civil Work	7 <sup>th</sup> Month
4	Unit 1 EL(+) 17.00 M Floor Structure clearance for floor casting/ Civil Work	7 <sup>th</sup> Month
5	Structural readiness of DM Plant	7 <sup>th</sup> Month
6	Structural readiness of Workshop building	7 <sup>th</sup> Month
7	Structural readiness of Clarified water Pump house	8 <sup>th</sup> Month
8	Structural readiness of Compressor House	8 <sup>th</sup> Month
9	Unit 1 AB-Bay roof structure clearance for floor casting/ Civil work	8 <sup>th</sup> Month
10	Unit 1 AB Bay readiness with cladding sheet	9 <sup>th</sup> Month
11	Unit 1 EL(+) 3.50 M Floor Structure clearance for floor casting/ Civil Work	9 <sup>th</sup> Month
12	Unit 1 EL(+) 28.85 M Structure clearance for EOT Erection	9 <sup>th</sup> Month
13	Structural readiness of FO pressurizing cum forwarding Pump House	10 <sup>th</sup> Month
14	Structural readiness of Cooling Water Pump House	10 <sup>th</sup> Month
15	Unit 2 EL(+) 8.50 M Floor Structure clearance for floor casting/ Civil Work	11 <sup>th</sup> Month
16	Unit 2 EL(+) 17.00 M Floor Structure clearance for floor casting/ Civil Work	11 <sup>th</sup> Month
17	Unit 1 EL(+) 14.00 M Floor Structure clearance for floor casting/ Civil Work	12 <sup>th</sup> Month
18	Unit 1 EL(+) 38.00 M Floor Structure clearance for floor casting/ Civil Work	12 <sup>th</sup> Month
19	Unit 2 AB-Bay roof structure clearance for floor casting/ Civil work	12 <sup>th</sup> Month
20	Unit 1 EL(+) 27.50 M Floor Structure clearance for floor casting/ Civil Work	13 <sup>th</sup> Month
21	Unit 2 AB Bay readiness with cladding sheet	13 <sup>th</sup> Month
22	Unit 2 EL(+) 3.50 M Floor Structure clearance for floor casting/ Civil Work	13 <sup>th</sup> Month
23	Unit 1 EL(+) 12.00 M Floor Structure clearance for floor casting/ Civil Work	14 <sup>th</sup> Month
24	Unit 1 BC Bay readiness	14 <sup>th</sup> Month

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VI: Time Schedule

SL No.	Milestones	Completion Months
25	Unit 2 EL(+) 14.00 M Floor Structure clearance for floor casting/ Civil Work	16 <sup>th</sup> Month
26	Unit 2 EL(+) 38.00 M Floor Structure clearance for floor casting/ Civil Work	16 <sup>th</sup> Month
27	Unit 2 EL(+) 27.50 M Floor Structure clearance for floor casting/ Civil Work	17 <sup>th</sup> Month
28	Unit 2 EL(+) 12.00 M Floor Structure clearance for floor casting/ Civil Work	18 <sup>th</sup> Month
29	Unit 2 BC Bay readiness	18 <sup>th</sup> Month
30	Unit 1 EL(+) 32.50 M Floor Structure clearance for floor casting/ Civil Work	18 <sup>th</sup> Month
31	Pipe & Cable rack completion for Unit 1	20 <sup>th</sup> Month
32	Unit 2 EL(+) 32.50 M Floor Structure clearance for floor casting/ Civil Work	22 <sup>nd</sup> Month
33	Pipe & Cable rack completion for Unit 2	24 <sup>th</sup> Month
34	Completion of balance structural works	28 <sup>th</sup> Month

### For Package B:

SL No.	Milestones	Completion Months
1	Structural readiness of AHP Compresor House	10 <sup>th</sup> Month
2	Structural readiness of Ash Water Pump House	12 <sup>th</sup> Month
3	Structural readiness of Ash Slurry Pump House	14 <sup>th</sup> Month
4	Structural readiness of Wet Ball Mill Bld. + Limestone Day Silo support structure	12 <sup>th</sup> Month
5	Structural readiness of FA Silo & IM Silo	14 <sup>th</sup> Month
6	Structural readiness of Limestone Crusher House	12 <sup>th</sup> Month
7	Structural readiness of LTP-1	14 <sup>th</sup> Month
8	Structural readiness of Limestone storage silo	14 <sup>th</sup> Month
9	Pipe & Cable rack completion	22 <sup>th</sup> Month
10	Completion of balance structural works	28 <sup>th</sup> Month

### For Package C:

SL No.	Milestones	Completion Months
1	TP 03 – Structural readiness	6 <sup>th</sup> Month
2	Conv 4A/4B - Structural readiness	7 <sup>th</sup> Month
3	TP 02 - Structural readiness	7 <sup>th</sup> Month
4	Conv 3A/3B - Structural readiness	13 <sup>th</sup> Month
5	Conv 2A/2B - Structural readiness	13 <sup>th</sup> Month
6	TP 01- Structural readiness	14 <sup>th</sup> Month
7	Conv 5A/5B - Conv to Mill Bunker Unit 1 - Structural readiness	16 <sup>th</sup> Month

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VI: Time Schedule

8	Conv 5A/5B - Conv to Mill Bunker Unit 2 - Structural readiness	20 <sup>th</sup> Month
9	Rev Conv 6 - Structural readiness	16 <sup>th</sup> Month
10	Crusher house building - Structural readiness	20 <sup>th</sup> Month
11	Pipe & Cable rack completion	22 <sup>th</sup> Month
12	Track hopper Structure readiness	30 <sup>th</sup> Month
13	Completion of balance structural works	32 <sup>th</sup> Month

Note: The above schedule is tentative. In case the project is to be advanced, the structural steel works in the scope of the contractor is to be advanced to meet the project requirement. No extra payment whatsoever shall be paid on this account.

### 6.5 **PROVISION OF PENALTY IN CASE OF SLIPPAGE OF INTERMEDIATE MILESTONES:**

For all packages, in case of slippage of Two Major Intermediate Milestones, mentioned as M1 & M2 hereunder, Delay Analysis shall be carried out on achievement of each of these two Intermediate Milestones in reference to F-14.

#### **For Package A:**

<b>Milestones</b>	<b>Activities</b>	<b>To be completed by</b>
M1	Unit 1 AB Bay readiness with cladding sheet	9 <sup>th</sup> Month
M2	Unit 1 EL(+) 32.50 M Floor Structure clearance for floor casting/ Civil Work	18 <sup>th</sup> Month

#### **For Package B:**

<b>Milestones</b>	<b>Activities</b>	<b>To be completed by</b>
M1	Structural readiness of Wet Ball Mill Bld. + Limestone Day Silo support structure	12 <sup>th</sup> Month
M2	Pipe & Cable rack completion	22 <sup>th</sup> Month

#### **For Package C:**

<b>Milestones</b>	<b>Activities</b>	<b>To be completed by</b>
M1	TP 02 - readiness	7 <sup>th</sup> Month
M2	Crusher house building - readiness	20 <sup>th</sup> Month

**Note A:** 'ANNEXURE-12: IMPORTANT INFORMATION' of the NIT regarding modalities against provision of penalty in case of slippage of Intermediate Milestones.

#### **Note B:**

- Contractor shall make all possible efforts to expedite the activities, in case of delay of any intermediate milestone, to maintain over all project completion schedule.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VI: Time Schedule

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2. Above time schedule is tentative and in order to meet above schedule in general, and any other intermediate targets set, to meet customer/project schedule, contractor shall arrange & augment all necessary resources from time to time as per the instructions of BHEL.
3. The above schedule is tentative. In case the activities in the schedule are to be advanced, the related Erection activities in the scope of the contractor are to be advanced to meet the project requirement. No extra payment whatsoever shall be paid on this account.
4. The contractor shall submit a detailed area/structure wise L3 schedule within 7 days in consultation with BHEL based on the tentative schedule provided as above. The detailed L3 schedule shall be approved by BHEL and same shall be implemented. Bidder shall submit L3 schedule in MS Projects to meet the agreed project schedule covering various mile stone activities and their split up details such as mobilization, procurement of materials & erection activities. This schedule shall also clearly indicate the interface facilities / inputs applicable in each package.
5. The under mentioned Records/ Log-books/ Registers applicable to be maintained.
  - I. Hindrance Register.
  - II. Site Order Book.
  - III. Test Check of measurements.
  - IV. Records of Test reports of Field tests.
  - V. Records of manufacture's test certificates.
  - VI. Records of disposal of scraps generated during and after the work completion.

**NOTE: The tentative commencement of work shall be from May'24.**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VII: TERMS OF PAYMENT

### 7. Terms of payment

The progressive payment for Erection and commissioning on accepted price of contract value will be released as per the break up given hereinafter:

#### **Payment Terms for Items where Supply is in BHEL scope:**

**For Package A, B & C: Payment shall be regulated progressively as mentioned in Table below:**

#### **7.1 Package A**

Progressive Payment against monthly running bills will be made up-to 90 % of the value of the erected tonnage Pro-rata as per following table.

Sr no	Description	Percentage
7.1.1	On pre-assembly wherever applicable (if not applicable, this portion shall be clubbed with placement in position)	15%
7.1.2	Placement in position	35%
7.1.3	Alignment with Grouting (wherever applicable)	20%
7.1.4	Welding / bolting / fixing	15%
7.1.5	Readiness of floors for concrete pouring as applicable (if not applicable, then this portion to be paid along with welding/bolting / fixing)	5%
7.1.6	TOTAL	90%

Further 10 % payment on pro-rata basis shall be released on achievement of the following stage / milestones events for the tonnage erected.

Sr no	Description	Percentage
7.1.7	READINESS of structure with side cladding in AB row. Payment shall be released on (bay wise) pro rata Basis.	5%
7.1.8	Area cleaning, temporary structures cutting/removal and return of scrap	2%
7.1.9	Punch List points/pending points liquidation	2%
7.1.10	Material Reconciliation	1%
7.1.11	TOTAL	10%
	<b>Total of 7.1.6 and 7.1.11</b>	<b>100%</b>

#### **7.2 Package B**

Progressive Payment against monthly running bills will be made up-to 90 % of the value of the erected tonnage Pro-rata as per following table.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VII: TERMS OF PAYMENT

Sr no	Description	Percentage
7.2.1	On pre-assembly wherever applicable (if not applicable, this portion shall be clubbed with placement in position)	15%
7.2.2	Placement in position	35%
7.2.3	Alignment with Grouting (wherever applicable)	20%
7.2.4	Welding / bolting / fixing	15%
7.2.5	Readiness of floors for concrete pouring as applicable (if not applicable, then this portion to be paid along with welding/bolting / fixing)	5%
7.2.6	TOTAL	90%

Further 10 % payment on pro-rata basis shall be released on achievement of the following stage / milestones events for the tonnage erected.

Sr no	Description	Percentage
7.2.7	READINESS of structure for erection of equipment. Payment shall be released on (area wise) pro rata Basis. (if not applicable, then this portion to be paid along with welding/bolting / fixing)	5%
7.2.8	Area cleaning, temporary structures cutting/removal and return of scrap	2%
7.2.9	Punch List points/pending points liquidation	2%
7.2.10	Material Reconciliation	1%
7.2.11	TOTAL	10%
	<b>Total of 7.2.6 and 7.2.11</b>	<b>100%</b>

### **7.3 Package C**

Progressive Payment against monthly running bills will be made up-to 90 % of the value of the erected tonnage Pro-rata as per following table.

Sr no	Description	Percentage
7.3.1	On pre-assembly wherever applicable (if not applicable, this portion shall be clubbed with placement in position)	15%
7.3.2	Placement in position	35%
7.3.3	Alignment with Grouting (wherever applicable)	20%
7.3.4	Welding / bolting / fixing	15%
7.3.5	Readiness of floors for concrete pouring as applicable (if not applicable, then this portion to be paid along with welding/bolting / fixing)	5%
7.3.6	TOTAL	90%

Further 10 % payment on pro-rata basis shall be released on achievement of the following stage / milestones events for the tonnage erected.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VII: TERMS OF PAYMENT

Sr no	Description	Percentage
7.3.7	READINESS of structure for erection of equipment. Payment shall be released on (conveyor wise) pro rata Basis. (if not applicable, then this portion to be paid along with welding/bolting / fixing)	5%
7.3.8	Area cleaning, temporary structures cutting/removal and return of scrap	2%
7.3.9	Punch List points/pending points liquidation	2%
7.3.10	Material Reconciliation	1%
7.3.11	TOTAL	10%
	<b>Total of 7.3.6 and 7.3.11</b>	<b>100%</b>

### **Payment Terms for Items where Supply is in Contractor scope in Package A, B & C:**

**7.4.1 Interim Payment (95%)** Interim bills in the form of monthly running bills prepared by the contractor shall be based on the quantities executed and measured.

**7.4.2 Payment (5%)** 5% of the item rate shall be released after submission of the quality check formats / documents as per the quality plan for the quantum of work billed and duly certified by engineer.

**Note:** The Terms of payment is only for enabling release of payments through RABs and is not indicative of the actual quantum or value of work.

**7.5 Progressive Payment/ Final Payment:** The payments for works under the scope of this contract shall be as per clause no 2.6; clause 2.22; clause 2.23 of General Conditions of Contract and Chapter X of Special Conditions of Contract. However, Clause No. 10.5 on RA Bill Payments, in Volume-IB, Chapter-X of SCC, is revised as under:

*Contractor shall raise their RA Bills along with supporting documents and checklist through SDD portal only.*

*The payment for running bills will normally be released within 30 days of submission of running bill complete in all respects with all documents. It is the responsibility of the contractor to make his own arrangements for making timely payments towards labour wages, statutory payments, outstanding dues etc. and other dues in the meanwhile. No interest shall be payable for the payment (if any) made beyond 30 days.*

Few points of consideration are as below:

- 7.5.1** The measurements sheets of work done in a month shall be submitted in triplicate duly agreed/signed by BHEL Engineer. The contractor shall extend all necessary assistance for verification of measurements of works without any extra cost.
- 7.5.2** Material reconciliation shall be complied on monthly basis.
- 7.5.3** The RA bill payments are interim payments and bills shall be submitted in prescribed formats.
- 7.5.4** Recoveries on account of electricity, water, statutory deductions etc. shall be made as per terms of contract.
- 7.5.5** BHEL will release payment through Electronic Fund Transfer (EFT)/RTGS.
- 7.5.6** Final bill shall be submitted after completion of works and upon material reconciliation along with all prescribed formats.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VII: TERMS OF PAYMENT

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**7.6** Quoted Rates are inclusive of all labour, contractor's equipment, temporary works, consumables and all matters and things of whatsoever nature, charges for Safety Aspects/Compliance to Safety Rules including operations and maintenance services (if applicable) etc., and other services, as identified in the tender Documents, as necessary for the proper execution of the subject work.

**'Amount linked to Safety Aspects/ compliance to Safety Rules' shall be 1 % of the cumulative total of Contract.**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VIII : Taxes and Duties

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

1. All taxes excluding GST, GST Cess & BOCW Cess **but including, Royalties, fees, license, deposits, commission, any State or Central Levy and other charges whatsoever, if any, shall be borne by you and shall not be payable extra.**
2. Any increase of the taxes excluding GST, GST Cess & BOCW Cess, at any stage during execution including extension of the contract shall have to be borne by the contractor. Quoted/ accepted rates/ price shall be inclusive of all such requirements. Please note that since GST on output will be paid by BHEL separately as enumerated below, your quoted rates/ price should be after considering the Input Credit under GST law at your end.
3. **GST :**  
The successful bidder shall furnish proof of GST registration .GST along with Cess (as applicable) legally leviable & payable by the successful bidder as per GST Law, shall be paid by BHEL. Hence Bidder shall not include GST along with Cess (as applicable) in their quoted price.
4. GST charged in the Tax Invoice/Debit note by the contractor shall be released separately to the contractor only after contractor files the outward supply details in GSTR-1 on GSTN portal and input tax credit of such invoice is matched with corresponding details of outward supply of the contractor and has paid the GST at the time of filing the monthly return
5. E-invoicing under GST has been implemented with effect from 1st October 2020 for all the taxable persons having turnover more than the threshold limit in any preceding financial year from 2017-18 onwards. Therefore, for all the taxable persons falling under the purview of E-invoice, it is mandatory to mention a valid unique Invoice Reference No. (IRN) and QR code as generated from E-Invoicing portal of the Government for the purpose of issuing a valid Tax Invoice. Only an E-invoice issued in the manner prescribed under rule 48(4) of CGST Rules shall be treated as valid invoice for reimbursement of GST amount.  
If the successful Bidder is not falling under the purview of E-Invoicing then he has to submit a declaration in that respect along with relevant financial statements.
6. Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred there under) wherein the 'Bill To' details will as below:  
BHEL GSTN – As per **Annexure -1**  
NAME -- Bharat Heavy Electricals Limited  
ADDRESS – Site address
7. Bidder to immediately intimate on the day of removal of Goods (in case of any supply of goods) to BHEL along with all relevant details and a scanned copy of Tax Invoice to below email ids to enable BHEL to meet its GST related compliances :-  
Email id ---- to be intimated later on.  
In case of delay in submission of the abovementioned documents on the date of dispatch, BHEL may incur penalty /interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from the successful bidder, if such delay is not attributable to BHEL.
8. In case of raising any Supplementary Tax Invoice (Debit / Credit Note) Bidder shall issue the same containing all the details as referred to in Section 34 read with Rule 53.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VIII : Taxes and Duties

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9. Bidder shall note that in case GST credit is delayed/ denied to BHEL due to delayed / non receipt of goods and /or tax invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons not attributable to BHEL, GST amount shall be recoverable from the vendor along with interest levied / leviable on BHEL, as the case may be.
10. Bidder shall upload the Invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law , GST amount paid by BHEL towards such ITC reversal as per GST law shall be recoverable from the bidder along with interest levied / leviable on BHEL.
11. Way Bill: Successful Bidder to arrange for way bill / e-waybill for any transfer of goods for the execution of the contract.

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

12. **New taxes and duties:-**Any New taxes & duties, if imposed subsequent to due date of offer submission as per NIT & TCN, by statutory authority during contract period including extension, if the same is not attributable to you, shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, you shall obtain prior approval from BHEL before depositing new taxes and duties.  
Benefits and/or abolition of all existing taxes must be passed on to BHEL against new Taxes, if any, proposed to be introduced at a later date.  
In case any new tax/levy/duty etc. becomes applicable after the date of bidder's offer but before opening of the price bid, the bidder must convey its impact on his price duly substantiated by documentary evidence in support of the same before opening of the price bids. Claim for any such impact after opening the price bid will not be considered by BHEL for reimbursement of tax or reassessment of offer.
13. For transportation work, bidder shall declare in his quotation whether he is registered under GST, if yes, whether he intends to claim GST on forward charge basis. In absence of this declaration, BHEL will proceed further with the assumption that bidder intends not to claim GST on forward charge basis. However, in case of GST registered transporter, the amount to the extent of goods and service tax will be retained till BHEL avails the credit of GST. Further, transporter shall issue tax invoice which inter alia includes gross weight of the consignment, name of the consigner and the consignee, registration number of vehicle in which the goods are transported, details of goods transported, details of place of origin and destination, GSTIN of the person liable for paying tax whether as consigner, consignee or goods transport agency, and also containing other information as mentioned under rule 46.
14. **TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills unless exemption certificate from the appropriate authority/ authorities is furnished.**
15. **TDS under GST shall be deducted at prevailing rates on applicable value from the running bills.**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VIII : Taxes and Duties

16. TCS under Income Tax 1961 has been implemented with effect from 1<sup>st</sup> October 2020 for every seller having turnover more than threshold limit during financial year immediately preceding financial year in which the sale of goods is carried out, who receives any amount as consideration for sale of any goods of the value or aggregate of such value exceeding threshold limit other than export of goods or who is already covered under other provision of section 206C, collect from the buyer, TCS as per applicable rates of the sale consideration exceeding threshold limit subject to following conditions

- i. Buyer shall be as per clause (a) of section 206C- (1H)
- ii. Seller shall be as per clause (b) of section 206C- (1H)
- iii. No TCS is to be collected, if the seller is liable to collect TCS under other provision of section 206C or the buyer is liable to deduct TDS under any provision of the Act and has deducted such amount.

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

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

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

### ANNEXURE-1

#### State wise GSTIN no.s of BHEL

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

### ANNEXURE-2

#### BOCW Act & Cess Act

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

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

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VIII : Taxes and Duties

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



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VIII : Taxes and Duties

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10. It shall be responsibility of the Building Worker engaged by the Contractor and registered as a beneficiary under the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 to contribute to the Fund at such rate per mensem as may be specified by the State government by notification in the Official Gazette. Where such beneficiary authorizes the contractor being his employer to deduct his contribution from his monthly wages and to remit the same, the contractor shall remit such contribution to the Building and other construction Workers' Welfare Board in such manner as may be directed by the Board , within the fifteen days from such deduction.
11. Bidders may please note that though the quoted price is exclusive of BOCW (which will be reimbursed by BHEL as per sub-clause 9 above) , however, If at any point of time during the contract period, non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder is observed, BHEL reserves the right to deduct the applicable cess (1%) on the contract value and penalty ( if any, imposed by Cess Authorities) from the payables on account of non-compliance.
12. The contractor shall declare to undertake any liability or claim arising out of employment of building workers and shall indemnify BHEL from all consequences / liabilities / penalties in case of non-compliance of the provisions of the Building and other Construction Workers' (Regulation of Employment and Conditions of Service) Act, 1996 and the Building and other Construction Workers' Welfare Cess Act, 1996 and the rules made thereunder.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

### BILL OF QUANTITY/WEIGHT SHCHEDULE

#### 9.0 Summary of Weight of BOQ for the scope of work mentioned in the tender: -

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Tot al	Pkg A	Pkg B	Pkg C	Supp ly scop e
Code	Item Description	UNIT	TOTAL Weight (In MT)				
1500	<b>ROOFING / SIDE CLADDING: Roofing / side cladding work including all labour, material (unless otherwise specified in BOQ/contract specification), equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at all level as per specification, drawings and as directed by engineer - in - charge.</b>						
B1502	METAL DECK SHEET Type-II, <del>Designing, providing and</del> fixing permanently color coated galvanised MS troughed metal sheet decking plate of approved colour over roof purlins for cast-in-situ roof slab as per relevant IS code and Grade as per specification. Bare metal thickness(BMT) of deck plate shall be minimum 0.8mm with minimum trough depth of 44 mm of grade G250 as per AS1397/grade SS255 as per ASTM A653M/ grade S250GD as per EN 10326 with zinc coating to class Z275 and shall serve as permanent shuttering to the floor slab 150 mm thick measured over crest of metal decking & shall have adequate strength to support weight of green concrete and imposed loads of min 100 kg/sqm (for two span condition) during construction between beams as per manufacturer's recommendations/ calculations/ test certificates for approval including fixing of plates to beams, side lapping, end lapping etc. all complete for below mentioned spans. The sheet shall be permanently coated with silicon modified polyster(SMP silicon content 30%-50%) paint or super polyster paint of minimum 20 micron DFT on exposed surface (facing operating floor) over primer coat of minimum 5 micron(nominal) and minum 10 micron (nominal) SMP or super polyester paint over primer coat of minum 5 micron (nominal) on other face. SMP and polyster paint system shall be of industrial finish of product type 4 of AS/NZ2728, including fixing of sheet to top flange of beam with drawn arc welding of headed shear anchor studs @ 260mm c/c in the trough and stich screws between two adjacent sheets and sealing with epoxy sealant.The shear anchor studs shall confirm to type B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19 mm dia & 100 mm length manufactured from cold drawn round steel bars confirming to ASTM A 29 of grade designation 1010 through 1020 of standard quality with either semi killed or killed welded by drawn arc stud welding through metal deck sheet. Measurement of profile sheeting shall be of						
Cont... A1502							



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Tot al	Pkg A	Pkg B	Pkg C	Supp ly scop e
Code	Item Description	UNIT	TOTAL Weight (In MT)				
	the plan area of roof covered by MS trough metal decking. <b>(Metal Deck Sheet shall be issued by BHEL free of cost)</b>						
B1502 a	Span Upto 1800mm	MT	147.3		31.0	116.3	BHEL
B1502 b	Span Exceeding 1800mm and upto 2500 mm	MT	49.5		22.9	26.6	BHEL
A1503	<del>Providing and</del> fixing shear anchor studs for fixing metal deck sheet to floor structural beams conforming to Type-B studs specified in AWS D1.1/D1.1M or equivalent as shear connector of 19mm diameter and 100mm length manufactured from cold drawn round steel bars conforming to the requirement of ASTM A 29, of grade designation 1010 through 1020, of standard quality with either semi-killed or killed, welded by Drawn Arc Stud Welding through metal deck sheet etc all complete as per specification.	MT	1.8			1.8	BHEL
A1505	<del>Designing, providing and</del> fixing External/ Inner sheet of Permanent colour coated metal cladding with troughed M.S. sheets of minimum 0.5 mm bare metal thickness of min. grade G350 as per AS1397/grade SS340 class 4 or as per ASTM A792M/ grade S350 GD as per EN 10326 with zinc coating to class Z275 / aluminium zinc alloy coating to class AZ150 on both sides including fixing to supports / rails by concealed fixing system, corrosion resistant self tapping / self drilling type fasteners with suitable cap, flashing, etc. all complete over columns, beams, bracings etc. at all levels. The exposed face the sheet shall be permanently coated with silicon modified polyester(SMP silicon content 30%-50%) paint or super polyester paint of minimum 20 micron DFT on exposed surface over primer coat of minimum 5 micron and minum 10 micron SMP or super polyester paint over primer coat of minimum 5 micron on other face. SMP and polyester paint system shall be of industrial finish of product type 4 of AS/NZ2728.	MT	785.3	292.8	166.7	325.8	BHEL
1511	<del>Providing and</del> fixing insulation of resin bonded mineral wool of 50 mm nominal thickness conforming to IS 8183 having a density of 32 kg/cum glass wool or 48 kg/cum for rock wool, for cladding/under deck insulation including application of glue and tying with lacing wire, for glass/rock wool as per manufacturer's recommendations.						
1511a	For insulation in Sandwich Cladding	MT	0.7		0.7		BHEL
1511b	For underdeck insulation below RCC slabs	MT					

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Tot al	Pkg A	Pkg B	Pkg C	Supp ly scop e
Code	Item Description	UNIT	TOTAL Weight (In MT)				
A1519	Designing, providing and fixing Factory made (Continuous Line) prefabricated sandwiched Permanent colour coated metal cladding comprising top sheet as troughed(minimum depth of trough shall be 30 mm) permanently colour coated sheet & bottom sheet as plain permanently colour coated for covering of exposed metal/concrete / brick surfaces with insulation shall be of Polyurethane type of minimum 50mm thick (excluding trough). The polyurethane shall be Chlorofluorocarbon (CFC) free and self-extinguishing and shall conform to IS 12436: 1988. It shall have Modular Density 40 +/- 2 Kg/m <sup>3</sup> and Thermal Conductivity @ 10 Deg.C 0.017 - 0.020 W/M Ok, Water absorption (% by vol) 3.1, Critical Oxygen Index 23 and Compressive Strength 1.2 Kg/sq.cm, sandwiched between the two sheets, each sheet shall be high strength tensile steel sheet 0.5mm bare metal thickness (minimum) of YS350 as per IS 15961 /grade G350 as per AS1397 / grade SS340 class 4 as per ASTM A792M / grade S350GD as per EN 10326 with zinc coating to class Z 275 / aluminium-zinc alloy coating to class AZ150 on both sides, both sheet shall be permanently coated with silicon modified polyester (SMP with silicon content of 30% to 50%) paint of minimum 20 micron DFT on exposed surface on 5 microns (min.) epoxy primer/phosphate primer coat and 10 micron (min.) SMP on 5 micron (min.) epoxy primer/phosphate primer on other face, SMP paint system shall be of industrial finish of product type 4 of AS/NZS 2728, ....contd.....	MT	102.7	61.9	7.8	33.0	BHEL
Contd.. A1519	...contd..... troughed sheet shall be of approved profile, sectional properties, (suitable for the specified loading / deflection and purlins / runner spacing), colour and shade, at all levels, including all labour, materials, equipment, handling, transportation, special coated fastener conforming to corrosion resistant Class 3 of AS3566 and tested for 1000 hours salt spray test, fixing insulated sandwiched metal sheet with the structural members below for supporting the sheeting system, scaffolding, equipment, end and side laps, cutting of openings, preparation of working drawings, testing, etc., all complete, as per specifications. Sealant used for cladding shall be butyl based, two parts poly sulphide or equivalent approved, non stainless material and be flexible enough not to interface with fit of the sheets. Coated surface shall be provided with a protected guard film (polyethylene) of about 40 microns to avoid any damage to the coating during handling. Overlap shall be min. 100 mm or as specified by manufacturer.						

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Tot al	Pkg A	Pkg B	Pkg C	Supp ly scop e
Code	Item Description	UNIT	TOTAL Weight (In MT)				
A1520	<del>Providing</del> & fixing permanently at all heights and elevations, troughed sheets over roof purlins/beams/side runners etc for roofing and side cladding (internal & external) including all labour, material, equipment, transportation, handling, scaffolding, laps, hooks, washers, corner pieces etc. at any level as per specification, drawings and as directed by engineer - in - charge. Quoted rate shall include cost of all labour, material, tools and plants, consumables, lead, lift etc complete. Fixing fire resistant and UV resistant polycarbonate translucent sheets of minimum 3MM thickness on roof & side cladding as per the specification and approved drawings and directions of engineer in charge	MT	27.0		2.6	24.4	BHEL
2300	<b>STRUCTURAL WORKS:</b> Structural steel works including all labour, material (unless otherwise specified in BOQ/contract specification), equipments unless otherwise specified, transportation, handling etc. at all level as per specification, drawings and as directed by engineer - in - charge.						

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Tot al	Pkg A	Pkg B	Pkg C	Supp ly scop e
Code	Item Description	UNIT	TOTAL Weight (In MT)				
A2301	<p>Supply, fabrication (shop fabricated in customer approved shop as per specification), <b>Taking delivery of steel from BHEL stores / store yard, loading, transportation, unloading, pre-assembly</b> and erection of <b>shop fabricated</b> Medium and High Tensile structural steel (Grade designation E350 Quality B0 (Fully killed), conforming to IS 2062. <del>Plates beyond 40mm thickness shall be vacuum degassed &amp; furnace normalised. Plates beyond 40mm thickness shall be vacuum degassed &amp; furnace normalised and shall also be 100% ultrasonically tested as per ASTM – A578 level BS2.)</del> with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, toe-guard/kick plate, grizzly gratings, treads, landings, hand-rails etc. <del>including 2 coats of redoxide zinc chromate primer (one coat at shop and one coat after erection), connection design &amp; preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding electrodes and other consumables, alignment, erection bolts &amp; nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, .....</del>Contd.....</p>	MT	5442 1.0	221 02. 0	148 46. 0	174 73. 0	BHEL

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Tot al	Pkg A	Pkg B	Pkg C	Supp ly scop e
Code	Item Description	UNIT	TOTAL Weight (In MT)				
Cont... A2301	<del>.....Contd..... preheating (min preheat and interpass temperature of 200 C for welding over 20 mm and upto 40 mm &amp; 660 C for welding over 40 mm and upto 63 mm &amp; 1100 C for thickness over 63 mm &amp; use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable); return of surplus / waste steel materials to store etc all complete. Including appointment of a independent seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. (Rate shall be exclusive of surface preparation and primer)</del>						
2307	<b>Supplying / Transportation</b> , fabrication, erection and alignment of factory made electroforged galvanised grating units with mild steel having minimum hot dipped galvanisation conforming to IS:2062, finish blast cleaned to Sa 2 ½ finish or cleaned by acid pickling as per ISO 8501-1 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. <b>(Gratings shall be issued by BHEL free of cost)</b>						
2307a	Minimum galvanisation of 610 g/sqm	MT	1975.5	857.5	938.0	180.0	BHEL
2307b	Minimum galvanisation of 900 g/sqm	MT	22.0		22.0	0	BHEL

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Tot al	Pkg A	Pkg B	Pkg C	Supp ly scop e
Code	Item Description	UNIT	TOTAL Weight (In MT)				
A2307	<b>Supplying / Transportation</b> , fabrication, erection and alignment of factory made Heavy Duty electroforged galvanised grating units with mild steel having minimum hot dipped galvanisation conforming to IS:2062, finish blast cleaned to Sa 2 ½ finish or cleaned by acid pickling as per ISO 8501-1, in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete. <b>(Gratings shall be issued by BHEL free of cost)</b>						
A2307 a	Minimum galvanisation of 610 g/sqm	MT	26.0	26.0			BHEL
2308	<b>Supplying / Transportation</b> , fabrication, erection and alignment of factory made galvanised welded grating units with mild steel conforming to IS:2062 in flooring, platforms, drain and trench covers, walk-ways, passages, staircases with edge binding strips and anti-skid nosing in treads etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), fixing clamps, fittings, fixtures, all taxes, duties, packing, grinding, drilling, welding, edge preparation, etc. all complete.	MT	66.0	9.0	30.0	27.0	BHEL
2311	<del>Providing and</del> fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	MT	44.3	24.7	11.3	8.3	BHEL
2312	<del>Providing and</del> fixing in positing of high strength structural bolts (of property class 8.8 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	MT	1263.9	777.9	224.0	262.0	BHEL
A2312	<del>Providing and</del> fixing in positing of high strength structural bolts (of property class 10.8 and product grade 'C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class '8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	MT	597.4	111.4	224.0	262.0	BHEL



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Tot al	Pkg A	Pkg B	Pkg C	Supp ly scop e
Code	Item Description	UNIT	TOTAL Weight (In MT)				
2316	<del>Supply, fabrication and</del> erection of minimum 3.15 mm thick stainless steel liner of grade SS:409M on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel, fabrication detailed drawing etc.all complete. (The measurement for the item of stainless steel liner in hopper shall be based on the actual finished weight of SS liner over hopper)	MT	125.0		125.0		BHEL
2317	<del>Supply, fabrication and</del> erection of minimum 4 mm thick stainless steel liner conforming to ASTM A 240 S204 ( Type 304 ) ; Finish Grade 2B (Cold rolled, Annealed & Pickled and Skin passed) on M.S. plate for inside surfaces of hopper & mouth of hopper of bunkers including fixing with stainless steel studs, bolting (including countersunk), welding with electrode classification E308L for welding of stainless steel to stainless steel and E309 for stainless steel to mild steel, fabrication detailed drawing etc.all complete. (The measurement for the item of stainless steel liner in hopper shall be based on the actual finished weight of SS liner over hopper)	MT	66.0		66.0		BHEL
2318	<del>Providing and</del> fixing in position PTFE type sliding bearings of reputed manufacturer, individual bearing suitable for required vertical loads as per the construction drawings and for maximum displacement of $\pm 50$ mm including all taxes, duties, transportation, installation, drilling, bolting, erecting, aligning etc all complete for following vertical loads.						
2318a	20 Tons ( Approx Weight: 0.20 MT/ Bearing)	MT	5.2	1.6	1.6	2.0	BHEL
2318b	25 Tons ( Approx Weight: 0.21 MT/ Bearing)	MT	5.5	1.7	1.7	2.1	BHEL
2318c	40 Tons ( Approx Weight: 0.23 MT/ Bearing)	MT	6.2	4.1	0.5	1.6	BHEL
2318d	50 Tons ( Approx Weight: 0.25 MT/ Bearing)	MT	5.8	2.0	2.0	1.8	BHEL
2318e	60 Tons ( Approx Weight: 0.27 MT/ Bearing)	MT	6.2	3.2	1.6	1.4	BHEL
2318f	100 Tons ( Approx Weight: 0.32 MT/ Bearing)	MT	0.6			0.6	BHEL
A2320	<del>Supply, design,</del> fabrication and fixing of stainless steel pipe (polished) hand railing conforming to SS 304 of 32 mm/40 mm/ 50mm / 60mm NB dia including polishing, decorative posts,Newel post, midrail, kick rail, toe guard, accessories,fastners, transportation, loading/unloading etc. all complete.	MT	32.0	32.0			BHEL

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.1 Erection/Installation of items mentioned hereunder (Supply under BHEL Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Weight (In MT)				
2321	Supply, fabrication and fixing of MS pipe hand railing of 32 mm/40 mm dia including transportation, loading/unloading, painting etc. all complete as per specification. Payments terms - a) on receipt of materials at site - 65%; b) Erection & fixing - 35%;	MT	170.0	23.0	25.0	122.0	BHEL
2322	Supply, fabrication and fixing of GI pipe hand railing (900 mm high) of 32 mm/40 mm dia (Medium Grade) including galvanisation @ 610 gm/sqm over blast cleaned steel surfaces etc all complete. item includes transportation, loading/unloading, suitable paint etc.	MT	235.0	67.0	168.0		BHEL
Total Estimated Value							
		MT	6018.8	243.98	169.18	188.72	

Section A.2 Fabrication and Erection/Installation of items mentioned hereunder (Steel Supply under BHEL Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Quantity in Unit				
3	Design, Fabrication and erection of tank including surface preparation painting etc. (Fixing of all equipments on Tank shall be covered under A2301) Details mentioned in TCC.	MT	1000.0		100.0		BHEL

Section A.3 Fabrication of items mentioned hereunder (Supply under BHEL Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Quantity in Unit				



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.3 Fabrication of items mentioned hereunder (Supply under BHEL Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Quantity in Unit				
A2301a	<del>Supply, Fabrication, Taking delivery of steel from BHEL stores / store yard, loading, transportation, unloading, fabrication pre-assembly and erection</del> of Medium and High Tensile structural steel (Grade designation E350 Quality B0 (Fully killed), conforming to IS 2062. Plates beyond 40mm thickness shall be vacuum degassed & furnace normalised. Plates beyond 40mm thickness shall be vacuum degassed & furnace normalised and shall also be 100% ultrasonically tested as per ASTM – A578 level BS2.) with rolled section / built up section / combination of both conforming to IS:2062, pipes conforming to IS:1161/ IS:1239, chequered plate conforming to IS: 3052, mild steel rounds, monorails, stays, safety chains, ladders, MS grating etc. in columns, beams, gantry girders, bunkers, silos, hoppers, roof trusses, portals, laced purlins, space frames, hangers, struts, monorails, galleries, stiffeners, wall beams, sheeting runners, brackets, stub columns, bracings, cleats, trestles, base plates, splice plates, chequered plate flooring, decking and seal plates, steel frame grid over false ceiling, walkway platforms, ladders, stairs, stringers, toe-guard/kick plate, grizzly gratings, treads, landings, hand-rails etc. including 2 coats of redoxide zinc-chromate primer (one coat at shop and one coat after erection), connection design & preparation of fabrication drgs, collection of steel from stores, fabrication, straightening, cutting, bending, rolling, grinding, machining, drilling, welding electrodes and other consumables, alignment, erection bolts & nuts (weight of erection bolts, nuts and welds not payable), assembly, edge preparation, .....Contd.....	MT	2000.0	500.0	500.0	100.0	BHEL

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section A.3 Fabrication of items mentioned hereunder (Supply under BHEL Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Quantity in Unit				
Cont... A2301 a	.....Contd..... preheating (min preheat and interpass temperature of 20o C for welding over 20 mm and upto 40 mm & 66o C for welding over 40 mm and upto 63 mm & 110o C for thickness over 63 mm & use of low hydrogen/ radiogenic electrodes), post heating, testing of welders, inspection of welds, visual inspection, non destructive and special testing, rectification and correction of defective welding works, production test plate, inspection and testing, erection scheme, protection against damage in transit, stability of structures, installation of temporary structures, setting column bases, surface preparation by means of manual or mechanical power tools as per IS:1477 part 1, touch-up painting, rectification, dismantling and removal of all temporary structures (weight of temporary structures not payable), return of surplus / waste steel materials to store etc all complete. Including appointment of a independent seperate agency, approved by BHEL, for review and approval of fabrication drgs, in consultation with BHEL. (Rate shall be inclusive of surface preparation and primer) (Rates shall be exclusive of Erection activity covered under Items A2301)						

### Section A: Summary

Sr. No	Descriptions	Weight (MT)
A.1	Structure Erection	60188.000
A.2	Tank Fabrication cum installation	1000.000
A.3	Structure Fabrication	2000.000

Section B.1 Other items mentioned hereunder (Supply under Contractor Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Quantity in Unit				
900	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.						

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section B.1 Other items mentioned hereunder (Supply under Contractor Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Quantity in Unit				
909	Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings & fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metallic protection etc. including preparation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge. including providing and fixing of 6 mm thick clear reflective toughened safety glass of Saint Gobain(India) or Asahi (India) or equivalent make and should have solar factor 25% or less, Maximum U-value 3.3W/SQMK, VLT min 30%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28) (incl Supply) Weight of aluminium section only shall be measure for the payment. Payment Terms: a) On receipt of material site - 60% b) Execution as per item description - 40%.	Kg	1142 5.0	114 25			Contractor
1518	Supply & fixing FRP (fibre reinforced plastic) sheets 2 mm thick including GI hooks/ J or L bolts, nuts, washers, bitumen washers etc. complete including overlap 100mm . <b>For Supply 60% of item rate shall be payable and for installation/execution 40% of item rate shall be payable</b>	SQM	840.0		840 .0		Contractor
2311a	<del>Providing and fixing in position</del> Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade 'C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	KG	4429. 0	246 9	113 0.0	830 .0	Contractor

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section B.1 Other items mentioned hereunder (Supply under Contractor Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Quantity in Unit				
2312a	Providing <del>and fixing in positioning</del> of high strength structural bolts (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers and nut as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	KG	1263 92.9	777 92. 9	224 00. 0	262 00. 0	Contractor
A2312a	Providing <del>and fixing in positioning</del> of high strength structural bolts (of property class 10.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers and Nut as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	KG	5973 9.3	111 39. 3	224 00. 0	262 00. 0	Contractor
2328	Supply, fixing lightning arrester and air terminal over roof of power house building, pump house and other structures including all materials, labour, electrodes etc complete (all materials to be supplied by the contractor). <b>For Supply 60% of item rate shall be payable and for installation/execution 40% of item rate shall be payable</b>	NO.	11.0	11			Contractor
A2326	Providing and fixing 20mm square MS bar post with suitable MS flat and CP teakwood handrails etc. all complete. <b>For Supply 60% of item rate shall be payable and for installation/execution 40% of item rate shall be payable</b>	RM	600.0	600			Contractor

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

Section B.1 Other items mentioned hereunder (Supply under Contractor Scope)			Total	Pkg A	Pkg B	Pkg C	Supply scope
Code	Item Description	UNIT	TOTAL Quantity in Unit				
2	Providing engineering consultancy services for Architectural design & drawings of CCR (Central control room in powerhouse building) in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views,panoramic views, walkthrough, with color schemes, lighting design, as per specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems etc. and taking approval on drawings from BHEL/customer (All complete).Perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers) as required in the desired format. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder.The scope of bidder shall include coordination with respect to HVAC, electrical & fire fighting systems & space requirements for electrical facilities in consultation with BHEL/ customer. Engineering services of acoustic design, interior architecture, PA system, planning for firefighting system as per inputs provided by BHEL, ...	Set	1.0	1			Contractor
Cont... 2	Cont....external & internal finishes, plumbing & sanitation, water supply system, false ceiling, internal partitions, reception, glazing,etc. are also included in this item. Any addition/changes in design as per customer requirement during detailed engineering stage, no extra payment is admissible. All design and drawings shall be submitted in soft and hard copies along with 3-D model and shall be PDS/PDMS compliant for transfer to complete plant PDS/ PDMS model.Bidder shall also provide BOQ & specification of finishing items in a generalized fashion in consultation with BHEL Civil design wing, during detailed engineering stage for further sub-contracting of finishing works						

### Note to weight schedule:

1. The Quantities mentioned above are approximate and liable to vary as per design consideration. Payments will be made for the quantities actually executed at the quoted rate. Quantity Variation will be dealt as per clause 2.14 of General Conditions of Contract (Volume I BCD).

### Section C: Serial no. 1 to 6 - Section C shall be divided in Package A, B & C Equally.

Item No.	Item Description	UOM (A)	Qty.
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# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## CHAPTER-IX: ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK (BOQ)

1.0	Construction and maintenance of labour colony having adequate no. of rest rooms along with toilets & fencing etc. as per drawing attached and TCC including associated civil and structural works on built, own and operate basis. Proposal for construction of these hutment is to be got approved from BHEL before organizing material and execution. Payment towards construction/development of labour colony as per drawing attached and as above shall be paid by BHEL as per following payment terms: i) On receipt of material for each set of labour colony at site - 50% ii) On completion of installation of labour colony for each set - 20% Handing over for accommodation of labour with all amenities for each set - 30% Land for labour colony is to be arranged by Contractor, Necessary levelling/dressing of land shall be done by the contractor. All arrangement for electricity and drinking/service water to be arranged by the contractor within his quoted price.	<b>Labour colony set</b>	3
2.0	Backhoe Loader/JCB	<b>Months</b>	8
3.0	Man lifter of min. 40 mtr height capacity	<b>Months</b>	12
4.0	Deployment of Safety personals at site	<b>Manmo nth</b>	128
5.0	Deployment of Computer operator at site	<b>Manmo nth</b>	128

**Sr No-7 of Section C: Charges towards this section shall be divided Propotionately in line with tonnage mentioned in the Section A Summary.**

Transportation charges towards extra movement of material (beyond 5 Kms) from BHEL storage yard to Project premises (in case storage yard is beyond 5 Km) = Rate is calculated considering storage yard shall be at 10 KM approx. - Rate shall vary depending upon the actual distance of Storage yard from Project gate. Hoever, Rate of Rs. 5 per Km per MT shall remain fixed.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: General

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### 10.1 GENERAL

#### Site Visit by the Bidder

**10.1.1 The bidder shall, prior to submitting his tender for the work, visit and examine the site of works and its surroundings at his own expense, and obtain and ascertain for himself on his own responsibility all information that may be necessary for preparing his tender and entering into a contract, and take the same into account in the quoted contract price for the work. The bidder shall satisfy themselves about the following factors:**

- i) Site conditions including access to the site, existing and required roads and other means of transport/communication for use by him in connection with the work including diverting and re-routing of services.
- ii) Requirement and availability of land and other facilities of his enabling works, establishment of his nursery, office, stores etc.
- iii) Ground conditions including those bearing upon transportation, disposal, handling and storage of materials required for the work or obtained there-from.
- iv) Source and extent of availability of suitable materials, including water etc., and labour (skilled and unskilled) required for work, and laws and regulations governing their use and employment.
- v) Geological, meteorological, topographical and other general features of the site and its surroundings as are pertaining to and needed for the performance of the work.
- vi) The limit and extent of surface and subsurface water to be encountered during the performance of the work, and the requirement of drainage and pumping.
- vii) The type of equipment and facilities needed, for and in the performance of the work:
- viii) The extent of lead and lift required for the work in complete form over the entire duration of the contract, and
- ix) All other information pertaining to and needed for the work including information as to the risks, contingencies and other circumstances which may influence or affect the work or the cost thereof under this contract.

10.1 It is not the intent to specify herein all details of all material. Any item related this work not covered by this but necessary to complete the system will be deemed to have been included in the scope of the work.

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

10.3 Site testing wherever required shall be carried out for all items / materials installed by the contractor to ensure proper installation and functioning in accordance with drawings, specifications and manufacturer's recommendations.

10.4 The contractor shall carryout additional tests, if any, which the Engineer feels necessary because of site conditions and also to meet system specification.

10.5 The work shall be executed under the usual conditions without affecting power plant construction / operation and in conjunction with other operations and contracting agencies at site. The contractor and his personnel shall cooperate with the personnel of other agencies, co-ordinate his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: General

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- 10.6 All the work shall be carried out as per instructions of BHEL engineer. BHEL engineer's decision regarding the correctness of the work and method of working shall be final and binding on the contractor.
- 10.7 Wherever Construction sequences are furnished by BHEL, the contractor shall follow the same sequence.
- 10.8 Contractor shall execute the supply and works as per sequence prescribed by BHEL at site engineer. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the methods of execution of similar job in any other site or for any reasons whatsoever.
- 10.9 If required by BHEL, the contractor shall change the sequence of his operation so that work on priority sectors can be completed within the projects schedule. The contractor shall afford maximum assistance to BHEL in this connection without causing delay to agreed completion date.
- 10.10 Contractor shall, transport all materials to site and unload at site / working area for inspection and checking. All material handling equipment required shall be arranged by the contractor.
- 10.11 Contractor shall retain all T&P / Testing instrument / Material handling equipment's etc. at site as per advice of BHEL engineer and same shall be taken out from site only after getting the clearances from engineer in charge.
- 10.12 The contractor at his cost shall arrange necessary security measures for adequate protection of his machinery, equipment, tools, materials etc. BHEL shall not be responsible for any loss or damage to the contractor's construction equipment and materials. The contractor may consult the Engineer-in-Charge on the arrangements made for general site security for protection of his machinery equipment tools etc.
- 10.13 The bidder and any of his personnel or agents will be granted permission by the Site-In-Charge or his authorized nominee, on receipt of formal application in respect thereof a week in advance of the proposed date of inspection of site, to enter upon his premises and lands for purpose of such inspection, but only on the express condition that the tenderer (and his personnel and agents) will relieve and indemnify the Employer (and his personnel and agents) from and against all liability in respect thereof and will be responsible for personal injury (whether fatal or otherwise), loss of or damage to property and any other loss, damage, costs and expenses however caused which, but for the exercise of such permission, would not have arisen.
- 10.14 Contractor shall execute the work as per sequence and procedure prescribed by BHEL at site. The applicable erection manuals which are available with BHEL site office are to be referred for compliance and guidance before taking up the work. Any rework on this failure to comply with will be to account of contractor only. BHEL engineer, depending upon the availability of materials, fronts etc., will decide the sequence of erection and methodology. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the method of erection adopted in erection of similar jobs in other projects or for any reason whatsoever.
- 10.15 The contractor is strictly prohibited from using BHEL's regular components like angles, channels, beams, plates, pipe / tubes, and handrails etc. for any temporary supporting or scaffolding works or as bed for pre-assembly works. Contractor shall arrange himself all such materials. In case of such misuse of BHEL materials, a sum as determined by BHEL engineer will be recovered from the contractor's bill. The decision of BHEL engineer is final and binding on the contractor.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: General

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- 10.16 All the works such as cleaning, levelling, aligning, trial assembly, dismantling of certain components for checking and cleaning, surface preparation, fabrication of sheets, as per general engineering practice and as per BHEL Engineer's instructions at site, cutting, weld depositing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scrapping, lapping, fitting-up etc., as may be applicable in such erection works and are necessary to complete the work satisfactorily, shall be carried out by the contractor as part of the work within the quoted rate. Major machining work, which is only to be carried out in workshops, will be arranged by BHEL.
- 10.17 The work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, engineering and construction management. The contractor should ensure successful and timely operation of equipment installed. The contractor must have adequate quantity of tools, construction aids, equipments etc., in his possession. He must also have on his rolls adequate trained, qualified and experienced supervisory staff and skilled personnel.
- 10.18 The contractor will be responsible for the safe custody and proper accounting of all materials in connection with the work. If the contractor has drawn materials in excess of design requirements, recoveries will be effected for such excess draws at the rate prescribed by manufacturing units.
- 10.19 No member of the already erected structure, platform, pipes, grills, other component and auxiliaries should be cut without specific approval of BHEL engineer.
- 10.20 Welding of temporary supports, cleats, etc. on the PH columns shall be avoided. In case of absolute necessity contractor shall take prior approval from BHEL Engineer. Further, any cutting or alternation of member of the structure of platform or other equipment shall not be done without specific prior approval of BHEL Engineer.
- 10.21 Contractors shall ensure that all their Staff / Employees are exposed to periodical training programme conducted by qualified agencies / personnel on ISO 9001 – 2008 Standards.
- 10.22 Contractor has to clear the front, expeditiously and promptly as instructed by BHEL Engineer for other agencies, like piping, Turbine, Generator erection, Cabling, instrumentation, insulation etc., to commence their work from / on the equipments coming under this scope. Sometimes, more than one agencies may have to work in same location. Sometimes it may be required to re-schedule the activities to enable other agencies to commence / continue the work so as to keep the overall project schedule.
- 10.23 For the purpose of planning, contractor shall furnish the estimated requirement of power (month wise) for execution of work in terms of maximum KW demand.
- 10.24 Crane operators deployed by the contractor shall be tested by BHEL before he is allowed to operate the cranes.
- 10.25 The contractor must obtain the signature and permission of the security personnel of the customer for bringing any of their materials inside the site premises. Without the Entry Gate Pass these materials will not be allowed to be taken outside.
- 10.26 Upon completion of daily work, the contractor shall remove from the vicinity of work all scrap packing materials, rubbish, unused and other materials and deposit them in places to be specified by BHEL Engineer.
- 10.27 During the course of erection, if the progress is found unsatisfactory, or if the target dates fixed from time to time for every milestone are to be advanced, or in the opinion of BHEL, if it is found that the skilled workmen like fitters, operators, technicians employed are not sufficient BHEL will induct

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: General

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required additional workmen to improve the progress and recover all charges incurred on this account including all expenses together with BHEL overheads from contractor's bills.

- 10.28 On completion of work, all the temporary buildings, structures, scaffolding, cables etc. shall be dismantled and levelled 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 expenditure towards clearance of the same will be recovered from the contractor. The decision of BHEL Engineer in this regard is final.
- 10.29 The intent of specification is to provide services according to the most modern and proven techniques and codes. The omission of specific reference to any method, T&P or material necessary for proper and efficient execution of this work shall not relieve the Contractor of the responsibility of providing such facilities to complete the work without any extra compensation.
- 10.30 The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. The Contractor and his personnel shall cooperate with personnel of BHEL, BHEL'S Customer, Customer's consultants and other Contractors, coordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work of the project as a whole.
- 10.31 The work shall confirm to dimensions and tolerances specified in the various drawings / documents that will be provided during various stages of erection. If any portion of work is found to be defective in workmanship, not conforming to drawings or other stipulations due to Contractor's fault, the Contractor shall dismantle and re-do the work duly replacing the defective materials at his cost, failing which the work will be got done by BHEL and recoveries will be effected from the Contractor's bills towards expenditure incurred including cost of materials and departmental overheads of BHEL as per GCC.
- 10.32 The Contractor shall perform any services, tests etc, which may not be specified but nevertheless, required for the completion of work within quoted rates.
- 10.33 All necessary certificates and licenses required for carrying out this work are to be arranged by the Contractor expeditiously.
- 10.34 The Contractor shall execute the work in the most substantial and workman like manner. The stores shall be handled with care and diligence.
- 10.35 BHEL reserves right to recover from the Contractor any loss which arises out of undue delay / discrepancy / shortage / damage or any other causes due to Contractor's lapse during any stage of work. Any loss to BHEL due to Contractor's lapse shall have to be made good by the Contractor as per GCC.
- 10.36 All cranes, transport equipment, handling equipment, tools, tackles, fixtures, equipment, manpower, supervisors/engineers, consumables etc, except otherwise specified as BHEL scope of free issue, required for this scope of work shall be provided by the Contractor. All expenditure including taxes and incidentals in this connection will have to be borne by Contractor unless otherwise specified in the relevant clauses. The Contractor's quoted rates should be inclusive of all such contingencies.
- 10.37 The Contractor shall make all fixtures, temporary supports, steel structures required for jigs & fixtures, anchors for load and guide pulleys required for the work. Contractor shall arrange necessary steel for such usage.
- 10.38 The distance between storage area and erection site is approx. 3-4 KM. Storage yard located at two different places and both are about 3-4 KM from erection area. Contractor shall plan and transport

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: General

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equipments, components from storage to erection site and erect them in such a manner and sequence that material accumulation at site does not lead to congestion at site of work. Materials shall be stacked neatly, preserved and stored in the Contractor's shed and at work areas in an orderly manner. In case it is necessary to shift and re-stack the materials kept at work areas/ site to enable other agencies to carry out their work or for any other reason, same shall be done by Contractor most expeditiously as incidental to work.

- 10.39 Plant materials should not be used for any temporary supports / scaffolding/ preparing pre-assembly bed etc. The details of equipment's to be erected under this contract are generally as per the schedule given in relevant appendices. These details are approximate and meant only to give a general idea to the tenderer about the magnitude of the work involved. Actual quantum and type of equipments will be based on the relevant erection documents which will be furnished to the Contractor in due course of erection and the weight and quantity as per the relevant engineering documents will only be admissible for the billing purpose.
- 10.40 The work shall be carried out strictly in accordance to the "Field Quality Plan" approved by BHEL/client. Contractor, jointly with BHEL, shall prepare all necessary records of measurements/readings/ protocols etc.
- 10.41 Contractor shall regulate flow of material to and from site in such a manner and sequence that material accumulation at site does not lead to congestion at site. In case it is necessary to shift and restack the materials kept at work areas / site to enable other agencies to carry out their work or further any other reason, it shall be done by the Contractor most expeditiously. No claim for extra payment for such work will be entertained.
- 10.42 The Contractor shall have total responsibility for all equipment and materials in his custody at Contractor's stores, loose, semi-assembled, assembled or erected by him at site. He shall effectively protect the finished works from action of weather and from damages or defacement and shall also cover the finished parts immediately on completion of work as per BHEL engineer's instructions. The machine surfaces/finished surfaces should be greased and covered.
- 10.43 Scope of work covered under this specification requires quality workmanship, engineering and green belt management along with the supply of all consumables, tools and tackles and testing instruments. The contractor shall ensure timely completion of work. The contractor shall have adequate tools, measuring instruments etc. in his possession. He shall also have adequate trained, qualified and experienced engineers, supervisory staff and skilled personnel. The manpower deployment identified by contractor shall match with above scope of works.
- 10.44 Site testing wherever required shall be carried out for all items / materials installed by the contractor to ensure proper installation and functioning in accordance with drawings, specifications and manufacturer's recommendations
- 10.45 The contractor shall carryout additional tests if any, which the Engineer feels necessary because of site conditions and also to meet system specification
- 10.46 The work shall be executed under the usual conditions without affecting power plant construction / operation and in conjunction with other operations and contracting agencies at site. The contractor and his personnel shall co-operate with the personnel of other agencies, co-ordinate his work with others and proceed in a manner that shall not delay or hinder the progress of work as a whole.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: General

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- 10.47 All the work shall be carried out as per instructions of BHEL engineer. BHEL engineer's decision regarding the correctness of the work and method of working shall be final and binding on the contractor.
- 10.48 Wherever Construction sequences are furnished by BHEL, the contractor shall follow the same sequence.
- 10.49 Contractor shall execute the supply and works as per sequence prescribed by BHEL at site engineer. No claims for extra payment from the contractor will be entertained on the grounds of deviation from the methods of execution of similar job in any other site or for any reasons whatsoever. If required by BHEL, the contractor shall change the sequence of his operation so that work on priority sectors can be completed within the projects schedule. The contractor shall afford maximum assistance to BHEL in this connection without causing delay to agreed completion date.
- 10.50 Contractor shall, transport all materials to site and unload at site / working area for inspection and checking. All material handling equipment required shall be arranged by the contractor.
- 10.51 Contractor shall retain all T&P / Testing instrument / Material handling equipment's etc. at site as per advice of BHEL engineer and same shall be taken out from site only after getting the clearances from engineer in charge.
- 10.52 The contractor at his cost shall arrange necessary security measures for adequate protection of his machinery, equipment, tools, materials etc. BHEL shall not be responsible for any loss or damage to the contractor's construction equipment and materials. The contractor may consult the Engineer-in-Charge on the arrangements made for general site security for protection of his machinery equipment tools etc.
- 10.53 The Contractor may have to execute work in such a place and condition where other agencies also will be under such circumstances. However, completion time for construction, agreed will be subject to the condition that contractor's work is not hampered by the agencies.
- 10.54 Contractor shall remove all scrap materials periodically generated from his working area and collect the same at one place earmarked for the same. Load of scraps is to be shifted to a place earmarked by BHEL. Failure to collect the scrap is likely to lead to accidents and as such BHEL reserves the right to collect and remove the scrap at contractor's risk and cost if there is any failure on the part of contractor in this respect.
- 10.55 The contractor shall ensure that his premises are always kept clean and tidy to the extent possible. Any untidiness noted on the part of the contractor shall be brought to the attention of the contractor's site representative who shall take immediate action to clean the surroundings to the satisfaction of the Engineer in- Charge.
- 10.56 No member of the already erected structure / buildings, should be removed / modified without specific approval of BHEL engineer.
- 10.57 Some time it may be required to re-schedule the activities to enable other agencies to commence / continue the work so as to keep the overall project schedule.
- 10.58 It is the responsibility of the contractor to do the checking, testing etc. if necessary, repeatedly to satisfy BHEL Engineer with all the necessary tools and tackles, manpower etc. without any extra cost. The testing will be completed only when jointly certified so, by the BHEL Engineer.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-X: General

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10.59 The contractor's work shall not hinder other work, either underground or over ground, such as electrical, phone lines, water or sewage lines, etc. In areas of overlap, the contractor shall work in coordination with other related contractors.

10.60 Any damage by the landscape contractor's team to such utilities will be penalized and contractor shall be responsible for cost for such damages.

### 10.61 SITE INSPECTION

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

10.61.2 BHEL / Customer will have full power and authority to inspect the works at any time, either on the site or at the contractor's premises. The contractor shall arrange every facility and assistance to carry out such inspection. On no account will the contractor be allowed to proceed with work of any type unless such work has been inspected and entries are made in the site inspection register by customer / BHEL.

### 10.62 DOCUMENTATION

10.62.1 The following information shall be furnished by the bidder within two weeks of award of contract for purchaser's approval

- a. Bar chart covering planned activities at site
- b. Detailed organization chart
- c. Details of T&P available with contractors with documents proofs.

10.62.2 The following information shall be furnished by the bidder after testing and inspection: Test certificates of various tests conducted at site. All inspection and test certificates shall be signed by BHEL representative also.

### 10.63 Dewatering

Dewatering of Low Lying areas like lift pits , other low lying areas (as per scope applicability) till handing over to customer is in bidders scope for which vendor has to arrange and maintain adequate no. of Diesel & electrical pumps of suitable capacities, operators, necessary manpower with sufficient quantity of suction & discharges hoses, pipes, Clamps, cables, Electrical panels/starters, diesel, consumables without any extra commercial implication on BHEL treating as normal scope of work. Dewatering pumps will be required to run to ensure job progress is not hampered & if required pumps are to be run on round the clock basis on working days & holidays, Sundays.

### 10.64 Housekeeping/Area Cleaning.

The contractor has to do area cleaning on every date on daily basis. Noncompliance of the above cleaning shall be done by BHEL at the risk and cost of the contractor. No excuses on this above account shall be entertained by BHEL on whatsoever account.

### 10.65 Approach platforms , fixtures

Steel items like angles, scaffoldings for erection of bracings, Tie beams are to be arranged by vendor for structural erection treating it as normal scope of work without any cost implication on BHEL.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XI: PROGRESS OF WORK

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(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

- 11.1 Refer forms F -14 to F-18 of volume I D (Forms & Procedure) of volume - I BCD. Plan and review will be done as per the formats.
- 11.2 The progress reports shall indicate the progress achieved against plan, indicating reasons for delays, if any. The report shall also give remedial actions which the contractor intends to make good the slippage or lost time so that further works can proceed as per the original plan the slippages do not accumulate and affect the overall programme.
- 11.3 It is the responsibility of the contractor to provide all relevant information on a regular basis regarding progress of work, labour availability, equipment deployment, testing, etc.
- 11.4 Contractor is required to draw mutually agreed monthly work programs in consultation with BHEL well in advance. Contractor shall ensure achievement of agreed program and shall also timely arrange additional resources considered necessary at no extra cost to BHEL.
- 11.5 Progress review meetings will be held at site during which actual progress during the week vis-a-vis scheduled program shall be discussed for actions to be taken for achieving targets. Contractor shall also present the program for subsequent week. The contractor shall constantly update / revise his work program to meet the overall requirement. All quality problems shall also be discussed during above review meetings. Necessary preventive and corrective action shall be discussed and decided upon in such review meetings and shall be implemented by the contractor in time bound manner so as to eliminate the cause of nonconformities.
- 11.6 The contractor shall submit daily, weekly and monthly progress reports, manpower reports, materials reports, consumables (gases / electrodes) report, cranes availability report and other reports as per Performa considered necessary by the Engineer. The periodicity of the reports will be decided by BHEL Engineer at site.
- 11.7 The contractor shall submit weekly / fortnightly / monthly statement report regarding consumption of all consumables for cost analysis purposes.
- 11.8 The contractor shall submit a report of any damage, shortage, discrepancy etc., every week detailing in this regard.
- 11.9 The manpower reports shall clearly indicate the manpower deployed, category wise specifying also the activities in which they are engaged.
- 11.10 The monthly report as a booklet shall be submitted at the end of every month and shall contain the following details :-
  - a) Progress photographs in colour.
  - b) Erection progress in terms of tonnage, welding joints, radiography, stress relieving, etc., completed as relevant to the respective work areas against planned.
  - c) Site Organization chart of engineers & supervisors as on the last day of the month with further mobilization plan.
  - d) Category- wise man hours engaged during the previous month under the categories of fitters, welders, riggers, khalasis, grinder-men, gas cutters, electricians, crane operators and helpers. Data shall be split up under the work areas
  - e) Consumables report giving consumption of all types of gases and electrodes during the previous month.
  - f) Availability report of cranes.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XI: PROGRESS OF WORK

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- g) Safety implementation report in the format.
- h) Pending material and any other inputs required from BHEL for activities planned during the subsequent month.

### **11.11 Site Data Digitalisation: Daily Activity Log, M-Book and Subcontracting Billing Module: -**

- a) Refer Vendor Portal System with links: for ref. <https://pshq.bhel.in/sddvp/>
- b) Login ID and Password shall be provided by respective package manager.
- c) Contractor by clicking 'Daily Work Photos', shall upload area wise photos on daily basis.
- d) Contractor by clicking 'Daily Activity Log', shall update site activities on daily basis.
- e) Contractor by clicking 'Measurement Book', shall enter Measurement Book in Format and BOQ.
- f) **Contractor shall raise their RA Bills along with supporting documents (such as Quality and HR Document – Vetted by Customer Etc.) and checklist through SDD portal only.**
- g) Contractor shall comply the system requirement.
- h) Refer Vendor Manual for further details.

Note: The contractor shall be required to provide all facilities including manpower for the aforementioned activities, without any cost implications to the BHEL. Agency shall print and submit the relevant formats (including RIV, SRV, WAM etc.) required for execution of the subject contract.

**11.12 BHEL has engaged a project management consultancy for this project. Agency shall submit all requisite documents/plans and attend review meetings with the Project management Consultancy during execution of the contractual work.**

**11.13 Agency shall extend all support towards inputs for IPMS system for project monitoring and control.**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XII: FOUNDATIONS & GROUTINGS

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### 12 PREPARATION OF FOUNDATIONS, AND GROUTING OF EQUIPMENT

- 12.1 Building foundations and other necessary civil works for supporting structures, equipments etc will be provided by BHEL / Customer . The checking of dimensional accuracy, axes, elevation, levels etc, with reference to bench marks of foundations and anchor bolt pits have to be checked and logged by the Contractor. The permanent benchmark / reference marks will have to be transferred to new locations with sufficient care to maintain the accuracy and protected / preserved with adequate care (to enable rechecking at later dates) as per BHEL instruction.
- 12.2 Minor adjustment of foundation level, dressing and chipping of foundation surfaces and blue-matching (wherever required) for of all equipments as per BHEL Engineers instructions, should be done by the Contractor as part of the work. Contractor/BHEL shall prepare protocols before taking over the foundations. Dressing and chipping of foundations up-to **30 mm** for achieving proper levels will be within the scope of work/specification.
- 12.3 It shall be contractor's responsibility to check the various equipment foundations for their correctness with respect to level, orientation, dimensions etc., and ascertained dimensions shall be measured and submitted to BHEL for approval before erection. Foundation pockets are to be cleaned thoroughly before placing the supports / columns / equipments. Verticality of foundation bolts to be checked along with correctness of the threads and freeness of the nuts movement. If required cleaning of the threads to be done with proper dies.
- 12.4 The concrete foundation, surfaces shall be properly prepared by chipping, as required to bring the top of such foundation to the required level to provide the necessary roughness for bondage and to ensure enough bearing strength. All laitance and surface film shall be removed and cleaned and the packers placed with suitable mortar prior to erection of the equipment. Packer plates should not only be blue matched with foundation but also inter-packer contact surfaces between the packers and foundation frame etc., shall also be blue matched by Prussian Blue match checks and required percentage contact shall be achieved by chipping and scrapping as per BHEL Engineer's instructions.
- 12.5 All temporary foundations and anchor points required for installing erection Equipments and winches, foundations for pumps, tanks etc are in the scope of Contractor. All building materials like cement, steel including re-enforcement bars, grits cements etc for such temporary foundations shall have to be arranged by the Contractor within the quoted rates. All such foundations shall be demolished and normal ground conditions restored after the usage.
- 12.6 The surface of foundations shall be dressed to bring the surface of the foundations to the required level and smoothness prior to placement of equipments / equipments based on the foundations including shear lug provisions / openings.
- 12.7 Contractor shall carry out scrapping and blue matching of embedded plates/ packers of rotating equipments. Chipping and the leveling of concrete surfaces, fine dressing up to the extent required to obtain contact between packer and concrete, is also covered in the scope of



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XII: FOUNDATIONS & GROUTINGS

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this work. Scrapping, chipping and matching shall be done so as to achieve prescribed percentage of contact between the two surfaces.

- 12.8 BHEL will provide free of cost only the shims and packer plates (either machined or plain) which go as permanent part of the equipment. Certain packer plates and shims over and above the quantity received as a part of supplies from manufacturing units of BHEL will have to be cut out from steel plates / steel sheets at site to meet site requirement. Contractor shall cut and prepare packers and shims by gas cutting / chiseling / grinding and de-burr the same. However, machining of the packers wherever necessary, shall be arranged by contractor.
- 12.9 Complete grouting of structures equipments, including anchor/ foundation bolts, beneath base, base hollows etc, as may be applicable, is included in the scope of Contractor. Arranging all labour, building materials including cement, ordinary portland as well as quick setting – free flow - non-shrink grout mix (e.g. conbextra GP-1/GP-2), form work, shuttering, and any other requirements is in the Contractor's scope. Contractor shall obtain approval of BHEL for cement (Ordinary Portland as-well-as quick setting – free flow- non-shrink grout mix) prior to use. Cleaning of foundation surfaces, pocket holes and anchor bolt pits and de-watering and making them free of oil, grease, sand and other foreign materials by soda washing, water washing, compressed air and other approved methods are within the scope of this specification/ work.
- 12.10 After the grouting has finally set and cured, alignment of equipments involved shall be checked again to verify for any disturbance or any other reason. If required, de-coupling of equipments has to be done for conducting the verification. In case any disturbance is noticed the cause, if any, shall be removed and re-alignment done as part of work.
- 12.11 The concrete foundation, surfaces shall be properly prepared by chipping, as required to bring the top of such foundation to the required level to provide the necessary roughness for bondage and to ensure enough bearing strength. All laitance and surface film shall be removed and cleaned and the packers placed with suitable mortar prior to erection of the equipment. Packer plates should not only be blue matched with foundation but also inter-packer contact surfaces between the packers and foundation frame etc., shall also be blue matched by Prussian Blue match checks and required percentage contact shall be achieved by chipping and scrapping as per BHEL Engineer's instructions.
- 12.12 Total grouting of the columns / equipments including pocket grouting, grouting at the gap between foundation and base plates top surface of column / equipments is in the scope of the contractor. All the grouting should be carried out by non-shrink cement like conbextra GP-1 / Conbextra GP-2 / Shrinkkomp or its equivalent etc. This special nonshrink cement shall be arranged by the contractor at his cost. The quoted rate shall be inclusive of the same.
- 12.13 All equipment bases and structural steel bases and foundations pockets shall be grouted and finished as per these specifications after surface preparation unless otherwise recommended by the equipment manufacturers. The surface preparation includes soda washing of the foundations to remove oil, grease etc. to ensure proper grouting.
- 12.14 The certificates of the grout are to be submitted to BHEL. If necessary test cubes are to be made and tested at site to ensure the quality of the grout as per relevant IS standards. In case grouting with Portland cement is approved, necessary cement, sand etc. to be arranged by the contractor including the fine aggregates.
- 12.15 All the materials required for grouting including special cements as approved by BHEL and other materials like Portland cement, sand chips, gravel etc., are to be arranged by the

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XII: FOUNDATIONS & GROUTINGS

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contractor at his cost. It shall be the responsibility of the contractor to obtain prior approval of BHEL, regarding suppliers, type of grouting cements before procurement of grouting cements.

- 12.16 Certain packer plates and shims over and above the quantity received as part of supplies from manufacturing units of BHEL will have to be cut out from steel plates / sheets at site by the contractor to meet site requirement. However machining of the packers, wherever necessary, will be arranged by BHEL at free of cost.
- 12.17 **PROCEDURE FOR GROUTING:** Contractor has to carry out the grouting as per the work instructions for grouting available at site or the grouting is to be carried out as per the supplier's recommendation / IS standard. Copy of those recommendations is to be submitted to BHEL for records.

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## Chapter-XIII: MATERIAL HANDLING, TRANSPORTATION AND SITE STORAGE

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

(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

- 13.1 Loading at BHEL / Customer stores and storage yard, transport to site, unloading at site / working area of equipment, placement on respective foundation / location, pre-assembly bay or at working area are in the scope of work. The scope includes taking materials / Equipments from customer stores / storage yard also. Contractors Quoted / Accepted rate shall be inclusive of the same. Required cranes, tractors, trailer or trucks/ slings/ tools and tackles / labour including operators, fuel, lubricants etc. for loading & unloading of materials will be in the scope of contractor.
- 13.2 The storage yard is located outside the Main Plant Boundary, in more than one location, at a distance of approximately 10 KM from the erection site.
- 13.3 Transportation of all items including ODC items from BHEL Store/Yard to Erection site shall be in the contractors scope. However, in some cases, consignments including ODC may be unloaded near erection site as per space availability and site requirements.
- 13.4 Loading at storage yard and transporting to site, unloading at site / pre assembly area or at working area, is in the scope of work. Required cranes for loading & unloading of materials, trailer shall be in the scope of contractor. The contractor shall provide any fixtures, concrete blocks & wooden sleepers, sandbags which are required for temporary supporting of the components at site.
- 13.5 The equipments / materials from the storage yard shall be moved in sequence to the actual site of erection / location at the appropriate time as per the direction of BHEL Engineer so as to avoid damage / loss of such equipment at site.
- 13.6 Contractor shall plan and transport equipments, components from storage yard to erection site in such a manner and sequence that material accumulation at site does not lead to congestion at site of work.
- 13.7 The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.
- 13.8 Sometimes it may become necessary for the contractor to handle certain unrequited components in order to take out the required materials. The contractor has to take this contingency also into account. No extra payment is payable for such contingencies.
- 13.9 Contractor shall plan and transport equipments, components from storage yard to erection site in such a manner and sequence that material accumulation at site does not lead to congestion at site of work. However, in specific cases **“as a special case to expedite the job”** the consignment received at BHEL stores can directly be diverted to the work site, as decided by BHEL, following issuance procedure of BHEL. Such direct issues shall be as per the Challan/dispatch document/LR received with the consignment. In such cases, contractor shall do unloading of materials from trucks/lorry at their own cost.
- 13.10 All materials issued by BHEL shall be stacked neatly, preserved, stored in the contractor's shed / work area above ground level by use of concrete or wooden sleepers. No materials shall remain on ground at any time. All concrete or wooden sleepers required for stacking

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XIII: MATERIAL HANDLING, TRANSPORTATION AND SITE STORAGE

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the materials shall be arranged by contractor at his own cost within the quoted rates. In case it is necessary to shift and re-stack the materials kept at work area / site to enable other agencies to carry out their work, same shall be done by the contractor at no extra cost.

- 13.11 All pipe and tube ends shall be covered with plastic caps or will be closed with wooden plugs as the case may be.
- 13.12 The contractor shall take care of material issued by BHEL and shall protect the same from damage and weathering. The contractor shall take necessary measures to see that all the machined surfaces are preserved and covered. Contractor has to arrange required fire proof tarpaulins to protect the machined components / assembled parts drawn from BHEL store before and after erection as required at their cost.
- 13.13 The contractor shall take all such measures as may be reasonably necessary to ensure that its arrangements and those of its sub-contractors with respect to the transport of Goods, Materials and Labour to the site do not interfere with local traffic in the vicinity of the site and where such interference is unavoidable shall make such special arrangements as may be reasonably required to minimize the effect of such interference.
- 13.14 The contractor shall take all such measures as may be reasonably necessary to ensure that its arrangements and those of its sub-contractors with respect to the transport of Goods, Materials and Labour to the site do not interfere with local traffic in the vicinity of the site and where such interference is unavoidable shall make such special arrangements as may be reasonably required to minimize the effect of such interference.
- 13.15 The contractor shall in no case be entitled for any compensation on account of any delay in supply or non-supply thereof for all or any such materials. However in case of non-availability of any specific materials which delays the completion of work, such cases shall be recorded separately in monthly planning format (F 14) and shall be considered for time extension of contract.
- 13.16 The contractor shall solely be responsible for the safety & security of material after it is handed over and issued to contractor by the BHEL. BHEL reserves the right to recover from the contractor any loss arising out of damage/ theft or any other causes or during verification/stacking or at any time under the custody of the contractor.
- 13.17 Contractor shall also carryout in complete association with BHEL, the material management functions and execution like day-to-day update of materials, issued to contractor, accounting for surplus/scrap material returned etc. These functions shall also be carried out through computerized system utilizing suitable software. Contractor shall engage experienced software personnel to associate on dedicated basis for efficient discharge of the same in time.
- 13.18 Open land for storage purposes shall be provided by BHEL on free of cost/as available basis. Temporary barbed wire fencing, as required, of the open storage yard is to be done by the contractor and is included under the scope of his work. Contractor shall also remove grass, bushes, trees etc wherever required off the land provided to agency and shall make proper continuous up keeping of the open yard /land by removing grass, bushes trees etc and same is included under the scope of his work & No extra payment shall be made to the contractor in this regard. The bidder shall make complete arrangement of necessary security personnel's to safeguard all such materials in his custody. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering. In

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XIII: MATERIAL HANDLING, TRANSPORTATION AND SITE STORAGE

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case, loss of any materials for whatsoever reasons attributable to the contractor, then cost of such materials shall be recovered from the running bill payment with applicable overheads.

- 13.19 All surplus materials shall be returned to BHEL store. All wastage / scrap (including melting scrap, wastage, and unusable scrap) shall be returned to the stores on weightment basis in consultation with BHEL Engineer and a receipt obtained for material accounting purposes. Scrap materials shall be sorted section-wise and returned separately at a place directed by BHEL Engineer within the project area. Return of such materials will not be entitled for any handling and incidental charges.

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## Chapter-XIV: ERECTION

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

(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

### **14.1 Erection**

- 14.1.1 The contractor will have to follow the instructions provided in the technical manuals, drawings, and specifications provided by BHEL, to the contractor from time to time. In case of ambiguity or deviation the decision/clarification of BHEL engineer will have to be followed.
- 14.1.2 In case of any class of work for which there is no such specifications as laid down in the contract such as blue matching, welding of stainless steel parts etc., the work shall be carried out in accordance with instructions and requirements of the BHEL engineer at the quoted rates only.
- 14.1.3 The contractor is strictly prohibited in using any of the Main components like angles, channels, hand-rails for any temporary supporting or scaffolding work. In case of such misuse, a sum as determined by BHEL shall be recovered from contractor's bills. Also the contractor will be responsible for the safe custody and proper accounting of all materials in connection with the work. If the contractor has drawn materials in excess of design requirements, recoveries will be effected for such excess draws at the rate prescribed by manufacturing units.
- 14.1.4 Any fixtures, scaffolding materials, approach ladders, concrete block supports, steel structures required for temporary supporting, pre assembly, checking, welding, lifting & handling during pre-assembly and erection shall be arranged by the contractor at his cost.
- 14.1.5 The temporary structures/ items welded to permanent members/pipes are to be cut and removed without any damage. Any damage so to permanent members/ pipes to be made good by the contractor at his cost.
- 14.1.6 In the case of structural members / ducts in certain cases, the raw material will be supplied in random lengths and the contractor will have to make up the length / prepare the edges to suit the matching profiles, weld / bolt connect the joints at no extra cost.
- 14.1.7 All the equipments /material to be taken inside the plant building shall be cleaned thoroughly before taking them inside. The contractor shall clean, wherever necessary and paint inside surfaces of the equipments like coolers, oil tanks, Rubber expansion joints and other components as per instruction of BHEL Engineer during erection within the quoted rate.
- 14.1.8 Contractor shall engage separate gangs throughout the contract period, exclusively for proper housekeeping of the site. The contractor has to make necessary arrangements for collection and for bringing down the scrap from all locations and taking them away



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from the erection areas to various locations as indicated by BHEL Engineer. The house keeping must be a routine and continuous activity.

- 14.1.9 The contractor shall take all reasonable care to protect the materials and equipment during erection. Touch up painting required to be done on any equipment or part during the course of erection will have to be done by the contractor.
- 14.1.10 Prior to erection of any components inspection to be done for any foreign materials and damages and they are to be removed / attended as per BHEL engineer.
- 14.1.11 Field Quality Assurance Formats:-It is the responsibility of the contractor to collect and fill up the relevant FQA log sheets of BHEL and present the same to BHEL after carrying out the necessary checks as per the log sheets and obtaining the signature of BHEL and customer as token of their acceptance. Payment to the contractor will be linked with the submission of these FQA log sheets.
- 14.1.12 All test require as per FQP (Field Quality Plan) will be in bidders scope. FQP shall be provided during execution time.
- 14.1.13 Supply and installation of items as per BOQ for structural works, Where ever the design & supply together is covered in the scope of bidder necessary approvals from BHEL / customer shall be taken by bidder for the design, inspection procedure & vendor. List of items for which such approvals required will be frozen during execution of the contract.
- 14.1.14 Contractor shall procure and supply the items to project site as per the BOQ for structural works from BHEL / customer approved vendors, meeting the specification (enclosed), Drawings and instructions of the Engineer.
- 14.1.15 Contractor shall provide the temporary structures like scaffolding, Access ladders, working platforms etc. and removal of the same after completion of Structural erection.

### **14.2.1 MAIN SUPPORTING STRUCTURES, EXTERNAL STRUCTURES, ELEVATOR STRUCTURES, STAIRWAYS, GALLERIES & PLATFORMS & HANDLING ARRANGEMENT**

- 14.2.2 In some cases, the structural material will be supplied in random lengths, which have to be fabricated to suit the requirement as incidental to work. Also, it may sometimes be necessary to remove some of the erected members to facilitate erection of bigger/ pre-assembled equipments. In such cases, the removal and re-erection of such members as agreed by the BHEL Engineer, will have to be done by the Contractor as incidental to work.
- 14.2.3 Contractor shall arrange materials required for temporary cat ladders & working platforms during erection of columns, platforms and other structural components. Such arrangements shall, as far as possible, be only of clamping & bolting type, as welding on columns etc will not be permitted. After the completion of work these shall be removed.

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- 14.2.4 All the hand rails and toe guards shall be provided as per drawings and site requirement. hand rails supplied in running lengths shall be suitably cut, edge prepared and welded. Also, hand rails/ guards may have to be provided from the safety point of view in certain places though not indicated in the erection drawings. The weld joints of hand rails shall be ground smooth to flush finish.
- 14.2.5 Electroforged floor grills will be supplied for this project. These may have to be cut to suit requirement. Cutting shall be done only by mechanical cutters **and not by gas cutting**. Cold galvanizing compound is to be applied on the cut surface/edge. Cold galvanizing paint supply is in Contractor scope.
- 14.2.6 Fixing of floor grills shall be done by self-tapping screws **and not by weldable studs**. Special purpose electrically operated hand tools are available in the market for this, which drills, taps and fixes the screws in a single operation. **Supply of necessary self-drilling-cum-tapping screws and fixing clips are in contractor scope**. Contractor shall deploy the **drilling cum fixing machine** required for this purpose as a regular scope of work.
- 14.2.7 The Contractor shall also install additional platforms of permanent nature for approaching different equipment as per the site requirement and to meet O&M requirements, though these may not indicated in the erection drawings. Materials required for such platforms will be supplied by BHEL in random sizes on free issue basis. These have to be fabricated to suit the requirement. Payment only for erected weight as certified by BHEL engineer shall be made at the rate applicable for structures. No payment is envisaged for fabrication of structures.
- 14.2.8 Certain structural items like roof cladding structure, platform etc will be supplied in running lengths which shall be cut to required suitable sizes and adjusted/trimmed as part of work.
- 14.2.9 All welded joints should be painted with anticorrosive paint / primer immediately after completion of all work. Necessary paints and other consumables for the above work are in the scope of the Contractor.
- 14.2.10 Touch up and preservative painting of all components issued to and/or erected by Contractor shall form part of scope of work. The Contractor shall arrange all paints, primer and consumables, T&P and facilities.

**ARRANGING PAINTS, PRIMERS FOR TOUCHUP PAINTING (AS APPLICABLE) AS PER TENDER SPECIFICATION FOR ALL ERECTED MATERIALS UNDER SCOPE OF THIS PACKAGE IS IN THE SCOPE OF CONTRACTOR.**

**The enclosed welding schedule in “Chapter-XXI Welding Schedule” is tentative and for reference only. The applicable welding schedules will be issued during erection of work at**



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site.

### **14.3 Reconciliation of Material issued by BHEL (free of cost):**

#### **General Notes**

- a. All materials as specified in relevant BOQ shall be issued free of cost by BHEL for use in the work covered in this contract from BHEL stores/storage yard. The contractor shall collect these materials from BHEL stores/storage yard at specified places at his own cost and store the same at his stores as per standard norms. Materials issued will be used only for construction of permanent works.
- b. BHEL reserves the right to recover from the contractor any loss arising out of damage/ theft or any other causes or during verification/stacking or at any time under the custody of the contractor.
- c. The contractor shall take care of material issued by BHEL and shall protect the same from damage and weathering.
- d. The contractor shall in no case be entitled for any compensation on account of any delay in supply or non-supply thereof for all or any such materials. However, in case of non-availability of any specific section(s) which delays the completion of work, such cases shall be recorded separately in monthly planning format (F 14) and shall be considered for time extension of contract in line with GCC.
- e. Contractor will have to make his own arrangement at his own cost for procurement of any other materials except as mentioned above/ BOQ, as required for the works and of such quality as acceptable to BHEL.
- f. The contractor shall maintain proper store account for all the BHEL issued materials and shall give **Three (03) copies of monthly-computerized reconciliation statement** of such account showing total receipt, consumption and balance at site to the BHEL. BHEL Engineer's certification for the reconciliation of steel shall be final. The detailed reconciliation (dia. Wise or as required) shall be done **at least once in three months (03) or before submission of final bill which comes earlier.**
- g. Contractor shall also carryout in complete association with BHEL, the material management functions and execution like day-to-day update of materials, issued to contractor, accounting for surplus/scrap material returned etc. These functions shall also be carried out through computerized system utilizing suitable software. Contractor shall engage experienced software personnel to associate on dedicated basis for efficient discharge of the same in time.
- h. The contractor shall solely be responsible for the safety & security of material after it is handed over and issued to contractor by the BHEL.
- i. BHEL issued materials, shall not be under any circumstances whatsoever, and shall be taken out of the project site unless otherwise permitted by BHEL for outside job.

### **14.4 HANDLING OF MATERIALS ISSUED BY BHEL:**

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14.4.1 Materials shall be issued by BHEL based on the weighment basis/linear measurements & sectional weight. However, on specific request of the contractor **“as a special case to expedite the job”** the consignment received at BHEL stores can directly be diverted to the work site following issuance procedure of BHEL. Such direct issues shall be as per the Challan/dispatch document/LR received with the consignment. In such cases, contractor shall do unloading of materials from trucks/lorry at their own cost.

14.4.2 All materials issued by BHEL shall be stacked, stored above ground level **by use of concrete or wooden sleepers. No materials shall remain on ground at any time.** All concrete or wooden sleepers required for stacking the materials shall be arranged by contractor at his own cost within the quoted rates. All other equipment like winches, D-Shackles, slings of various sizes, max puller, pulley blocks, jacks, trucks, trailers etc required for such handling of steel from BHEL stores/storage yard etc shall be arranged by contractor within quoted/accepted rates.

### 14.5 Issue Of steel

14.5.1 **The steel shall be issued to the contractor on the following basis:**

- i. Structural Steel: Weighment basis (Unit-MT)
- ii. GI Gratings: Weighment Basis (Unit-MT/As Received from manufacturer)
- iii. MS Rails: Weighment Basis (Unit-MT)

14.5.2 All the steel structure issued by BHEL (as per BOQ) shall be properly accounted for. The total quantity of steel required for the work will be calculated from the approved Bar Bending schedule, fabrication drawings, approved laps, chairs and lugs etc. The measurement for payment as well as for accounting shall be based on the sectional weights as indicated in the following IS/BS/EN specifications:

Sr No	Name of Standard	Name of Section
1	IS: 808-1964	Beams, Channels and Angles
2	IS: 1730-1961	Plates, Sheets and Strips/Flats
3	BS4-1: 1993	UB/UC sections
4	IS: 12778/equivalence with EN-19-57	For NPB sections
5	IS: 12778/equivalence with EN-53-62	For HE/WPB sections
6	IS: 1786 or grade -1 of IS432 (Part-I)	Rounds including deformed high yield strength bars.

In case any such sectional weights are not available in the above documents, the manufacturer recommendation shall be binding.

14.5.3 The steel issued to the contractor shall be mainly in standard length and sections as received from the supplier. However, the contractor shall be bound to accept the steel in length as available in the project stores, no claims for extra payment because of issue of non-standard length will be entertained.

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- 14.5.4** The contractor shall satisfy himself of the quality and quantity of the materials at the time of taking delivery from BHEL stores. No claims whatsoever will be entertained by BHEL because of quality or quantity after the materials are taken by the contractor from BHEL stores.
- 14.5.5** The contractor shall submit to BHEL, a statement indicating estimated quantity and steel required during a quarter. In addition, the contractor shall also furnish the estimated requirement of steel during a month by the third week of the previous month indicating his requirement.
- 14.5.6** Following shall be limit for the maximum quantity of BHEL issue materials that would be with the contractor at any point of time when work is in progress (excluding what has already been incorporated in the works).

SL No.	ISSUE OF MATERIALS	MAX QUANTITY IN CONTRACTORS STORE
01	Reinforcement Steel, MS Rod/GI Flat, GI Grating, Foundation Bolts, MS Rails	ONE MONTH
02	Structural Steel	ONE MONTH

- 14.5.7** Bidders shall ensure that no lamination material is taken over by them from BHEL.
- 14.5.8** The contractor must note that cement and steel required for the contractor's enabling job like store/ site office/ ~~batching plant~~/temporary work etc shall be arranged by the contractor at his own cost.

### **14.6** RETURN OF MATERIALS

**14.6.1 Return of Structural steel materials, sheets , floor gratings including Scrap:** All surplus steel and all wastage materials will be taken back on weighment basis. Surplus, unused and untampered steel shall be sorted section-wise and returned separately at a place directed by BHEL Engineer within the project area. Return of such materials will not be entitled for any handling and incidental charges. All wastage / scrap (including melting scrap, wastage, and unusable scrap) shall be returned to the stores in consultation with BHEL Engineer and a receipt obtained for material accounting purposes. Return of such material will not be entitled to any transportation and incidental charge. Scrap for ~~reinforcement steel~~ and structural steel shall be returned separately.

### **14.7** Scrap & Serviceable Materials:

- 14.7.1** All structural steel of length above 2 M except M.S Plate shall be considered as **serviceable materials** provided the materials are free from any physical damage, good condition and unwelded. Structural steel of length less than 2 M shall be treated as scrap.
- 14.7.2** Plates having both side greater than 1 Meter OR if any side is less than 1 M but greater than 0.5 M and the total area is equal or greater than 2 sq. Meter shall be considered as **serviceable materials**.

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**14.7.3** All pipe measuring 2 M and above in length shall be treated as **serviceable materials** provided they are free from any physical damage, good condition and un-welded. Pipe in less than 2 M length shall be treated as Scrap.

### **14.8** **Steel Consumption and Wastage**

**14.8.1** **Structural steel materials, roof & side cladding sheets , Deck Sheet, floor gratings Consumption (Which are in BHEL Scope)**

The theoretical consumption of various sections and/or diameter of reinforcement and earthing rod steel shall be based on approved construction drawing and bar bending schedule. Weight shall be calculated considering the sectional weights as per Indian standards. No extra cost shall be payable to the contractor for any deviation in weights for the different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

14.8.1.1 **Actual consumption = Issue – Surplus.**

14.8.1.2 **Surplus = untempered, unused, uncut quantity of steel including serviceable materials returned by the contractor to BHEL store.**

14.8.1.3 **Wastage = Actual consumption – Theoretical consumption.**

**14.8.2** **Structural Steel, GI Gratings, roof & side cladding sheets and MS Rails Wastage:**

14.8.2.1 **Allowable Wastage:** (+3%) of the theoretical consumption shall be considered as allowable wastage.

Sr. No	Material	Theoretical allowable wastage Percentage (%)
1	Structural steel	4%
2	Roof & side cladding and Deck sheets	2%
3	Floor gratings/Hand rail etc.	3%

Wastage and scrap shall be as per actual weighment basis.		
Sl no	Reinforcement steel & MS earthing rod	Basis of issue & penal recovery
R-1	Theoretical consumption (without considering wastage and scrap or loss)	Free
R-2	Wastage limited to aforesaid theoretical consumption (R-1) towards allowable wastage.	Free
R-3	Wastage beyond allowable of the theoretical consumption above (R-1).	Penal rate

**14.9** **Structural Steel (Rolled Sections and Plates etc.) Consumption:**

The theoretical consumption of various sections shall be based on approved drawings. Weights shall be calculated considering the sectional weights as per Indian standard. No extra shall

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payable to the contractor for any deviation in weights for the two different procedures adopted for issue and calculation of the theoretical consumption including rolling tolerances.

**14.9.1** Actual consumption = Issue – Surplus.

**14.9.2** Surplus = untempered, unused, uncut quantity of steel including serviceable materials returned by the contractor to BHEL store.

**14.9.3** Wastage = Actual consumption – Theoretical consumption.

### **14.10** Structural Steel Wastage:

**Allowable wastage:** + 4% (FOUR percent) of the theoretical consumption shall be considered. Wastage shall be considered as cut pieces and scrap material, measured as per actual weighment basis. Invisible wastage, if any, shall be considered to be included in the specified 4 % allowable wastage

Wastage and scrap shall be as per actual weighment basis.		
Sl no	Structural steel including SS plate	Basis of issue & penal recovery
S-1	Theoretical consumption (without considering any wastage, scrap or loss) as per specification & drg.	Free
S-2	Wastage limited to <b>plus four</b> percent (+4%) of the aforesaid theoretical consumption (S-1) towards allowable wastage	Free
S-3	Wastage beyond <b>four</b> percent (4%) of the aforesaid theoretical consumption (S-1).	Penal rate

### **14.11** Reconciliation of Materials:

**14.11.1** The contractor shall submit a reconciliation statement of steel issued to the contractor with each RA Bill.

**14.11.2** At the time of submission of bills, the contractor shall properly account for the material issued to him as specified herein to the satisfaction of BHEL certifying that the balance material are available in the contractor custody at site.

**14.11.3** At the time of submission of bills, if it is noticed by BHEL that the wastage is high and calls recovery at the penal rate, then, BHEL will proceed for recovery for the excess wastage as per penal recovery rates as specified.

**14.11.4** The reference drawings for actual material consumption to be used for the purpose of reconciliation shall be drawings prepared by the BHEL and drawings approved by BHEL for fabrication works and such other drawings approved by BHEL. This shall also include the bar bending schedule prepared by the contractor and approved by BHEL.

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### 14.12 Recovery of Materials (Penal Rates):

If wastage exceeds the specified limit, the recovery of excess wastage shall be made from monthly RA Bills as per following penal rates:

Sr No	Item	Penal rate (Rs)
P-1	Structural steel	65,000 per MT
P-2	Roof & Side cladding & Deck sheets	140,000 per MT
P-3	Floor gratings/Hand rail etc.	85,000 per MT

- 14.13 Open land for storage purposes shall be provided by BHEL on free of cost/as available basis. Temporary barbed wire fencing of the open storage yard is to be done by the contractor and is included under the scope of his work. Contractor shall also remove grass, bushes, trees etc wherever required off the land provided to him and shall make proper continuous up keeping of the open yard /land by removing grass, bushes trees etc and same is included under the scope of his work & No extra payment shall be made to the contractor in this regard. The bidder shall make complete arrangement of necessary security personnel's to safeguard all such materials in his custody. Materials issued will be used only for construction of permanent works. The contractor shall take care of material issued by BHEL and shall protect the same from theft, damage and weathering. Excessive rusting of steel in custody of agency/contractor must be avoided. In case, due to any cause attributable to the contractor, such rusting of steel occur rendering the same unusable, then such quantity of steel shall be recovered from the interim payment at the penal rate specified in the tender.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XV: Welding, Heat Treatment & Radiography and Non-destructive Testing

### WELDING, HEAT TREATMENT & RADIOGRAPHY AND NON-DESTRUCTIVE TESTING

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

(All the works mentioned hereunder shall be carried out within the accepted rate unless otherwise specified.)

- 15.1 Welding of structural steel shall be done by certified welders who possess valid certificate and who are approved by BHEL Engineer.
- 15.2 All welders including tack welders, structural shall be tested and approved by BHEL Engineer before they are actually engaged on work even though they may possess a valid certificate. BHEL reserves the right to reject any welder if the welder's performance is not found to be satisfactory. The contractor shall maintain the records of qualification and performance of welders. BHEL Engineer will issue all the welders qualified for the work, an identity card. The welder will keep the same with him at work place at all times. He may be stopped from work if he is not found in possession of the same.
- 15.3 Engineer may stop any welder from the work if his performance is unsatisfactory for any technical reason or if there is a high percentage of rejection in the joints welded by him. The welders having passed qualification tests does not absolve the contractor of contractual obligation to continuously check the welder's performance.
- 15.4 Faulty welds caused by the poor workmanship shall be cut and re-welded at the contractor's expense. The Engineer prior to any repair being made shall approve the procedure for the repair of defective welds. After the repair has been carried out, the compliance shall be submitted to the quality engineer.
- 15.5 All expenses for testing of contractor's welders including destructive and Non- destructive tests conducted by BHEL at site or at laboratory shall have to be borne by the contractor only. Only BHEL approved electrodes and filler wire will be used. All electrodes shall be baked and dried in the electric electrode-drying oven to the required temperature for the period specified by the Engineer before these are used in erection work. All welders shall have electrodes drying portable oven at the work spot. The electrodes brought to the site will have valid manufacturing test certificate. The test certificate should have a co-relation with the lot number / batch number given on electrode packets. No electrodes will be used in the absence of above requirement. The thermostat and thermometer of electrode drying oven will be also calibrated and test certificate from Govt. approved / accredited test house traceable to National / International standards will be submitted to BHEL before putting the oven in use. The contractor shall also arrange periodical calibration for the same. Separate ovens shall be used for baking and holding.
- 15.6 All butt / fillet welds shall be subject to Non -Destructive testing as per the Drawing/Procedures/Welding Schedules/Documents at no additional cost.
- 15.7 The contractor shall also be equipped for carrying out other NDT like LPI /MPI / Hardness test etc. as required as per welding schedules / drawings within the finally accepted price / rates. Ultrasonic testing, wherever required, will be arranged by contractor within the quoted rate.
- 15.8 All charges towards testing of Welders for destructive and non-destructive test, testing and approval of welders for engaging in the erection work shall be borne by the contractor.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XV: Welding, Heat Treatment & Radiography and Non-destructive Testing

### 15.9 List of Penalties on Violations on Quality Provisions

Sr no	Violation	Penalty in Rs
1	Mother oven not working	500 per day & ban on its use
2	Slackness in control over baking of welding electrodes(Doc.)	200 per incident
3	Holding oven not working/plugged in	500 per incident/day & ban its use
4	Portable oven not working/Plugged in	100 per incident & welder to be sent home
5	Use of cold electrodes(Except E6013)	1000 per incident & welder to be sent home
6	Unauthorized welder on job	5000 per incident & welder to be sent home
7	Delay in NDT Agency deployment w.r.t jointly agreed Ere. Prog	500 per incident
8	Failure to monitor Welder's Performance (RT, SR, Penalty Joint etc.)	5000 per week
9	Improper acts w.r.t maintain SR Charts	10000 per incident
10	Site Welding/QLY Engineer not deployed w.r.t mutually agreed Ere. Plan	500 per day
11	Delay in (RT, SR, UT) report submission & customer acceptance Log sheets esp. for Billed qty. from dt. of Billing (Vendor)	10,000 per week
12	Lack of safe approach Scaffolds/Platform for inspection & non-availability of calibrated MMDs –	1000 incident.

#### 15.60.1 RECEIPT INSPECTION OF WELDING ELECTRODES / FILLER WIRES

1. All electrodes / filler wires received at site stores shall be segregated for type and size of electrode.
2. Ensure that electrode packets received are free from physical damage.
3. Where electrodes are damaged, the same shall be removed from use.
4. Only electrodes identified in the "Rationalized List of Electrodes" are to be accepted.
5. Where filler metals are supplied by manufacturing unit, inspect for damages, if any.
6. Ensure availability of relevant test certificates. Refer tables of chemical compositions and mechanical properties for acceptance.
7. Endorse acceptance / rejection on the test certificate.

#### 15.60.2 STORAGE & IDENTIFICATION OF WELDING ELECTRODES / FILLER WIRES

1. **Scope**
  - 1.1 This procedure is applicable for storage of welding electrodes / filler wires used at sites.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XV: Welding, Heat Treatment & Radiography and Non-destructive Testing

### 2. Procedure:

- 2.1 Only materials accepted (based on receipt inspection) shall be taken into account for storage.
- 2.2 Storage Facility:
  - 2.2.1 The storage facility shall be identified.
  - 2.2.2 Access shall be restricted to authorized personnel.
  - 2.2.3 The storage area shall be clean and dry.
  - 2.2.4 Steel racks may be used for storage.
  - 2.2.5 Avoid storing wood inside the storage room.
  - 2.2.6 Maintain the temperature of the storage facility above the ambient temperature.
  - 2.2.7 This can be achieved by the use of appropriate heating arrangement .
- 2.3 The electrodes / filler wire shall be segregated and identified for
  1. Type of electrode e.g. E7018.
  2. Size of electrode e.g. Dia 3.15 mm.
- 2.4 Colour coding for filler wires:
  - 2.4.1 On receipt of GTAW filler wires, codify the filter wires as per table I below . Both ends shall be coloured.

**Table - 1**

Specification	Brand Name*	Colour Code
RT 1/ 2 Mo (ER80s-D2)	TGSM	Green
RT 1 Cr 1 / 2 Mo (ER80S-B2)	TGS 1CM	Silver grey/White
RT 2 1/ 4 Cr 1 Mo (ER90S-B3)	TGS 2CM	Brown / Red
RT 347 (ER 347	TGS – 347	Blue

(\* or other approved equivalents)

- 2.4.2 Where another set of colour code is followed, maintain a record of coding used
- 2.4.3 Where the filter wire is cut, apply the appropriate colour code at both ends of the piece.
- 2.4.4 For other filler wires, a suitable colour distinct from table 1 shall be applied

### 15.60.3 BAKING AND HOLDING OF WELDING ELECTRODES

#### A. Purpose:

This section details activities regarding baking and holding of welding electrodes used at sites.

#### B. Procedure:

1. While handling, avoid contact of oil, grease with electrodes. Do not use oily or wet gloves.
2. It is recommended that not more than two days requirements are baked.

#### C. GTAW Filler Wires:

1. These wires do not require any baking.

#### D. Covered Electrodes:

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XV: Welding, Heat Treatment & Radiography and Non-destructive Testing

- I. Baking and holding
- II. Identify baking oven and holding oven.
- III. They shall have a temperature control facility upto 350 °C for baking oven and 200 Deg. C for holding oven.
- IV. A calibrated thermometer shall be provided for monitoring temperature.
- V. On opening a packet of electrodes, segregate and place them in the baking oven. Avoid mix up.
- VI. After loading, raise the baking oven temperature to the desired range as per Table below.
- VII. Note the time when the temperature reaches the desired range. Maintain this temperature for the duration required as per Table below.
- VIII. On completion of baking, transfer the electrodes to holding oven, maintain a minimum temperature of 100°C till issue.
- IX. The electrode shall not be subjected to more than two cycles of baking. Maintain a register containing following details:
  - a. Brand name (e.g. Supratherme)
  - b. Size (e.g. Dia 4.0 mm)
  - c. Quantity (e.g. 110 pieces)
  - d. Time at required temperature ie. Above 2500C
  - e. Time of Transfer to holding oven. Activities a, b, c to be recorded before loading into the oven.

**Baking and Holding Parameters**

AWS Classification (*)	Baking		Holding Temperature °C (@ )
	Temperature °C	Time (Hours)	
E7018	250 – 300	2	100 min
E7018-1	250 – 300	2	100 min
E7018-A1	250 – 300	2	100 min
E8018-B2	250 – 300	2	100 min
E9018-B3	250 – 300	2	100 min
E8018-B2L	250 – 300	2	100 min
E9018-B3L	250 – 300	2	100 min
E309 & E347	250 - 300	1	100 min

Note : (\*) For other electrodes, supplier's recommendations shall be followed.

(@) Maintain the temperature in the oven till issue.

### 15.61 Steel Structure

(a) Only material which has been identified against mill sheet or test certificates shall be used for construction. All plates above 40mm thickness shall be 100% ultrasonically tested.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XV: Welding, Heat Treatment & Radiography and Non-destructive Testing

- (b) Visual inspection of all welds shall be performed in accordance with AWS D.1.1.
- (c) NDT requirements of structural steel welds (other than Coal Bunkers) shall be as under:-
  - (i) 100% RT/UT on butt-welds of plate thickness > 32 mm.
  - (ii) For plates of 25mm < thickness < 32mm - 10% RT/UT and 100% MPI
  - (iii) For plates of thickness < 25mm - 10% MPI/LPI.
  - (iv) All fillet welds of built up plate girders shall be inspected 100% by MPI.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XVI: HYDRAULIC TEST

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**VOID**

TECHNICAL CONDITIONS OF CONTRACT (TCC)  
Chapter-XVII: Testing, Pre-Commissioning & Commissioning And Post Commissioning

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VOID

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XVIII: PAINTING

### 18 PAINTING

- A. Touch-up Painting:** All structures/ components shall be supplied from BHEL units/ workshops with finish coats of paint. Therefore final painting is not applicable in the scope of contractor. However touch up painting (wherever required), incidental to the work, shall be in the scope of the contractor, including supply of the required paints and primers and associated consumables.

Though the final painting is not there in the scope of the contractor, in case any shop painted structure/component is required to be repainted due to the reasons attributable to the contractor such as Mis-handling, damage during erection process, other reasons incidental to the work etc, such re-painting/finish painting of the components/structures shall be in the scope of the contractor including the supply of paints and primers along with all required consumables & deployment of tools e.g wire brush, paint brush, Spray M/c, cleaning agents etc.

- B. For Tank fabrication sum installation item and Structure Fabrication item:** Work related to surface finish and painting of items is in scope of agency. Item rate is inclusive of surface finish and painting work including its consumables. Supply of primer, Thinner and paint shall be in the scope of agency.

Contractor shall carry out surface preparation and painting works as per BHEL/Customer specification and instruction of BHEL engineer at site.

#### 18.1

Paints and painting work carried at site shall confirm to the following codes and standards:

IS:5 – Colour for ready mixed paints and enamels

IS : 101 Part 1 to 9 – Methods of sampling and test for paints, varnishes and related products

IS : 1477 Part I&II – Code of practice for painting of ferrous metals in building

IS : 2932 – Specifications for enamel, synthetic and exterior,

a) Under Coating

b) Finishing

IS: 9407 – Colour code for identification of pipelines used in thermal power plants.

Contractor shall satisfy himself, availability of all information in the specifications for proper selection of the paints and ensure their applications as per Codes.

#### Scope of Contractor/BHEL regarding Supply of Paint & Paint application

S No	DESCRIPTION	BIDDER	Supply of Paints	REMARKS
a)	Surface preparation	Yes		Whenever required

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XVIII: PAINTING

b)	Preservation painting	Yes	BIDDER	Wherever applicable
c)	Touch up painting	Yes	BIDDER	Wherever applicable
g)	Painting of welded surface	Yes	BIDDER	Wherever applicable
l)	Supply of scaffoldings, platforms, structures & ropes etc	Yes	BIDDER	
m)	Supply of tools e.g wire brush, paint brush, Spray M/c, cleaning agents etc	Yes	BIDDER	
n)	Supply of Other Consumables	Yes	BIDDER	

### 18.2 Primer Painting: (wherever applicable and incidental to touchup painting & preventive painting)

a) After surface preparation, two coats of **epoxy resin based zinc primer** shall be applied. Dry film thickness of each coat shall be as per the recommendations of primer/paint manufacturer. Primer shall be applied by either spraying or bushing ensuring a continuous film without “holidays”. Primer coat shall be immediately applied without any time lag after the surface preparation.

b) Any equipment shall be carefully examined and where ever the primer coat is damaged shall be recoated with primer. However over the field welds, bolts and nuts etc. two primer coats as per a) shall be applied.

### 18.3 Finish Painting (wherever applicable and incidental to touchup painting & preventive painting)

a) After the primer coat has dried out, the surface shall be cleaned of dust without scratching or in any way damaging the primer coat. Over this, dry surface finish painting shall be carried out.

b) Finish painting shall be carried out in two coats. Dry film thickness of each coat shall be as per the recommendation of the primer/paint manufacturer. Minimum thickness including primer and paint coating shall be as per specification.

c) Paint shall be applied either by brushing or spraying. It shall be ensured that brush marks are a minimum and the requirements of workmanship are as specified in IS: 1477 (for site painting works on systems, structures and components).

d) Paint used shall be stirred frequently to keep the pigment in suspension. Paint shall be of ready mixed type in original sealed containers as packed by the paint manufacturer. Addition of thinners shall not be permitted.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XVIII: PAINTING

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e) No painting shall be done in frost/foggy weather or when the humidity is high enough to cause condensation on the surface to be painted. Paint shall not be applied when the temperature of the surface to be painted is 5° C or below.

### **18.4 Touch-up painting on damaged areas -**

a) For coatings damaged up to metal surface

Surface preparation shall be carried out by manual cleaning. Minimum 6 inches adjoining area with existing coating shall be roughened by wire brushing, emery paper rubbing etc., for best adhesion of patch primer. Primer coat of touch-up primer has to be applied by brush immediately after the surface preparation.

Over this primer coat, finish coat and final finish coat shall be applied as covered above by brush within maximum seven (7) days of application of touch up primer.

**18.5** Painting of welded areas / painting of areas exposed after removal of temporary supports / touch-up painting on damaged areas of employer's structures, where inter-connection, welding / modification etc. has been carried out by the bidder.

Clean the surface to remove flux spatters and loose rust, loose coatings in the adjoining areas of weld seams by wire brush and emery paper.

(Painting procedure to be followed for touch-up painting on damaged areas.

**18.6** The scope of work includes touchup painting and colour bands, lettering, marking and signs for direction of flow/rotation, names etc of approved colours as per the standard colour codes and specifications specified in tender specification or as advised by BHEL/Customer engineer at site for the equipments / components covered in these specifications.

**18.7** In certain isolated instances where it is not possible to clean the equipments as explained above, cleaning by grinding might have to be resorted to. No damage to the equipment/components should be caused.

### **18.08**

Surface to be painted should be free of oil and grease. It should be removed by using suitable cleaning agents including permitted solvents. Surface cleaned by chemical agent, if required, shall be treated further as prescribed in use of such cleaning agents.

### **18.09**

During the preparation of surface, if the shop coat is damage by chemical cleaning or by mechanical means, contractor shall repair the same free of cost.

### **18.10**

Specified drying time shall be permitted from one to another coat.

### **18.11**



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XVIII: PAINTING

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This work requires working at higher altitudes from ground level to as high as 50 mtr and more. The work spread is also substantial involving substantial run of structures. Contractor shall take sufficient precautions to avoid any accident and hazard in all respects. The ropes, ladders, scaffolding materials, clamps etc and climber used should be of standard quality for safe and smooth execution of work.

### 18.12

Contractor shall carry out the work in such a way that other erected equipment, structure, civil foundations and other property are not damaged. For damages in any of such cases due to lapses by Contractor, BHEL shall have the right to recover the cost of such damages from the Contractor.

### 18.13

Contractor shall take due care to cover/protect the equipment which are already painted while carrying out the painting of other adjacent equipment. If so happens, it shall be cleaned and repainted by the Contractor without any extra charges.

### 18.14

In general, painting of structural parts and colour bands, lettering, marking of direction of flow/rotation etc will be carried out by brush painting. However, areas/equipments inaccessible for manual painting have to be painted by spray painting. The decision of BHEL engineer, in this regard, shall be final and binding on the Contractor. Laying of air hose pipe and any other line required shall be done by Contractor at his cost

### 18.15

Final painting work shall be started after obtaining clearance from BHEL engineers and as per his instructions.

### 18.16

Acceptance of Final Painting for required thickness shall be as per the thickness measured by Alcometer by customer/BHEL Engineer. Contractor shall have to carry out painting till the required thickness is achieved.

18.17 Prior to application of refractory, bituminous painting (including supply) on the pressure parts and other area is under Contractor scope.

18.18 Painting two coats of bituminous paint on Insulation cladding sheet inner surface.

**PAINTING SCHEME: Attached in VOL-I-E- 2911 as “Annexure-3 Painting Schedule & Scheme”**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XIX: Lining and Insulation

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# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XX: PRESERVATION & PROTECTION OF COMPONENTS

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### 20 PRESERVATION & PROTECTION OF COMPONENTS

- 20.1 At all stages of work, equipments/materials in the custody of Contractor, including those erected, will have to be preserved as per the instructions of BHEL. Necessary preservation agents including the primer & paint, for the above work shall be provided by the Contractor.
- 20.2 The Contractor shall make suitable security arrangements including employment of security personnel and ensure protection of all materials/ equipment in their custody and installed equipments from theft/fire/pilferage and any other damages and losses.
- 20.3 Contractor shall collect all scrap materials periodically from various area of work site, deposit the same at one place earmarked at site or shift the same to a place earmarked in BHEL/ client's stores. In case of failure of Contractor in compliance of this requirement, BHEL will make suitable arrangement at Contractor's risk and cost.
- 20.4 The entire surplus, damaged, unused materials, packaging materials / containers, special transporting frames, gunny bags, etc shall be returned to BHEL stores by the Contractor.
- 20.5 The Contractor shall not waste any materials issued to agency. In case it is observed at any stage that the wastage/excess utilisation of materials is not within the permissible limits, recovery for the excess quantity used or wasted will be effected with departmental charges from the Contractor. Decision of BHEL on this will be final and binding on the Contractor.
- 20.6 For any class of work for which no specifications have been laid down in these specifications, work shall be executed as per the instructions of BHEL.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXI: SPECIAL FEATURE

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- 21.1 The project shall be monitored by BHEL/NTPC through software based project monitoring tool: IOPMS (Integrated online project monitoring software).
- The Key deliverables of online software-based project monitoring tool shall be as follows:
    - Design & Development (Phase-I) – 2 month
    - Implementation (Phase-II) – 2 month
    - Handholding (Phase-III) – 2 months
    - Sustenance (Phase-IV) – 6 months
  - BHEL shall be closely working with the NTPC team during the above four phases and shall train the NTPC team in carrying forward the system.
- 21.2 The project shall be monitored by BHEL/NTPC through Drone Based Project Monitoring & visualization system:
- BHEL shall supply, installation & commissioning of Drone Based Project Monitoring & visualization system with all associated viewing and monitoring platform & its integration with IOPMS including configuration & generation of customized reports.
  - Periodic (monthly) Construction Progress Monitoring through Orthomosaic mapping ,3D Modelling and visualization with time lapse photography and 2D Video comparison shall be done till COF of the last unit and extensions if any Progress Monitoring shall be done with photogrammetry techniques taking high resolution Drone images from a calibrated camera. All the photographs shall be preciously georeferenced by GPS, Glonass etc. for accurate aerial triangulation process for generation of orthomosaic and 3D data.
    - BHEL shall carry out the entire exercise of Survey and processing of the orthomosaic
    - BHEL shall install 3D Platform for viewing relevant data to be generated during the survey as well as in further phase of the project parallel to initiating the reconnaissance survey. BHEL shall install the platform both in the staging and production environment.
    - The platform shall provide capabilities to view and analyze the data submitted during reconnaissance survey phase.
  - Key Deliverables:
    - High resolution Geo-tagged images
    - 3-D Model
    - Orthomosaic
    - Contour Map at required scale and interval
    - Profile Graph (Longitudinal/ Cross sectional)
    - Quantity Estimates Report
    - Photogrammetric data (Measurements) reports.
    - Periodically Aerial Videography (4K Aerial videos)
    - High resolution Geo-tagged images
    - Real time data /video shooting on requirement basis.
    - Including web based output for visual monitoring on NTPC server
- 21.3 Special conditions
- If the Engineer-in-Charge is not satisfied with the work of manpower deputed for the work, he may insist for replacement through written notice. After receiving such notice, the Bidder shall depute replacement manpower within 3 days.
- 21.4 Intent: Objective of such system is sequential and timely availability of Material, Manpower and T&P as well as ensuring quality during erection. which is critical for Project success. Smart Project Management System (SPMS) shall cover entire lifecycle of project material – dispatch from

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXI: SPECIAL FEATURE

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vendor/sub-vendor location, receipt at NTPC Project, in plant material management, status till installation at site with the use of Smart material management system and also Smart Monitoring and tracking of Construction manpower and T&P. SPMS shall also include tracking of mandatory spares. The whole system must result in controlling project costs, compressing schedules, improving risk management, ensuring quality during erection and to avoid delay in project execution due to non-traceability of material. Smart Project Management system (SPMS) shall be valid up to the COF of last Unit.

- 21.5 Supply Chain Management: BHEL/its OEM/its suppliers shall affix RFID tags/Trackers/QR Code on the item & punch the same before dispatch with RFID reader/BLE beacon & enter details of item associating with RFID tag no./Tracker no.

A. Each item identifiable with PGMA-DU / other identification scheme of the BHEL/OEM/OES shall have a RFID/QR.

- 21.6 WORK FLOW:

I. BHEL shall enter the details of material shipment in a web portal/Mobile Application and will generate a unique code before the material is dispatched & affix the same to material package & configure the same with RFID tag attached.

II. Receipt of this material at NTPC gate by authorized personnel (e.g. CISF) at NTPC gate by scanning the same RFID - automatic status update in web portal from “under transit” to “receipt at site”. BHEL will use the same RFID to store the material at site - status will be updated in web portal regarding storage location at site. Now status shall reflect “material in storage” along with storage location. So material is identified till it is erected at site.

BHEL shall supply RFID readers/BLE beacons & Hardware & Software for communication & installation & commissioning for OEM/OES works, employer’s site material gate & BHEL’s stores at site.

Further, BHEL shall provide sufficient nos. of RFID readers/ BLE Beacons to create multiple zones in store & support warehouse management which shall facilitate contractors/user to track & locate items location in Store/Warehouse.

- 21.7 GPS tracking for Over Dimension Consignment (ODC)

BHEL shall install GPS trackers (with inbuilt GPRS module) in ODC consignments vehicles and manage the tracking of such vehicles on real time basis. The tracking shall be real time and web based.

- 21.8 Construction Manpower Tracking

- a. Implementation of RTLS (Real Time Location Tracking system) along with the supply of associated wearable tags/ RFID tags affixed to helmet-This shall be applicable for all manpower hired/deployed by BHEL’s Contractor for this project. Every personnel entering in to NTPC site premises for carry out any work shall be tracked. [Separate tagging for visitors]. Geofencing/BLE beacon based zoning of the erection area shall be done to track workforce deployment and safety purposes. Work force monitoring Dash board (planned vs actual deployment) shall be made available. Total 10 nos. of zones /Geo-fence shall be created. As a minimum complete main plant area & offsite system such as CHP, AHP, CWPB, CT, DM, PT & Switchyard shall be covered with the system.
- b. BHEL shall supply Real Time Location Tracking System (RTLS) to track the near real time location of operator/worker in the plant based on 802.11 active RFID tags or similar other technology e.g. LPWAN LoRa that serves the intent of the specifications here.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXI: SPECIAL FEATURE

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- c. The system can also make use of the wireless mesh network. BHEL shall provide all required hardware along with fixed & running charges e.g. RFID readers, BLE beacons & LoRa backhaul.
- d. The system shall comprise of wearable tags for operator/worker during operator movement or any other field activity for example construction work, maintenance. The system shall cover all areas as identified during detailed engineering & are to be configured as per the scope of this contract and shall be able to differentiate between different floor levels in a building or a particular area. The system shall be able to simultaneously track all the wearables. The system shall be able to provide a list of workers in a particular area or zone at any point of time.
- e. For the purpose the complete area shall be divided into various zones or areas. It shall be possible to assign/mark each of the wearables against the details of the person (for example name, employee no., photo, employing agency, etc.) who is carrying that particular wearable device. If an operator who is being tracked through this system moves out of the system range, the system shall be automatically able to start tracking that operator again as soon as he/she re-enters the area of coverage.
- f. Further, it shall be possible in the system to keep a log of movement of the field worker for a configurable amount of time (hours/days/months) in FIFO mode till the last tracked location, even if the worker moves out of range. The system shall be so designed that it shall be able to detect and differentiate between multiple tags at the same location. Also, the system shall provide a provision to automatically raise an alert if the tracked tag/operator has not moved from a certain location even after a certain period of time has elapsed. The accuracy of location shall be of the order of few meters (up to 10 meters) or better. Further the system shall be capable enough to add 30% more wearable trackers/tags to system without the need of purchasing/upgrading any hardware for the infrastructure except for the additional trackers/tags.

### 21.9 T&P tracking & Equipment monitoring

Heavy equipment will be tracked with real-time position location for fleet management. Deployment vs planned reports shall be generated. Equipment Condition monitoring data like Service Meter Reading, Operation maps, Loading, fuel levels, operating info, idle time etc. shall be captured. IIOT based such solution shall be based on open protocols & all hardware & software for IIOT architecture VIZ Sensors, Gateways, Database/Cloud application, Communication Hardware & software & Visualization layer has to be supplied by Contractor within quoted price of this package. All T&P equipment deployed by contractor to be covered. Minimum 5 signals per equipment has to be included by BHEL's Contractor.

### 21.10 Real time monitoring reports/Dashboard and integration with Employer's system

BHEL shall coordinate with NTPC and offer SPMS to furnish a complete system as per above specified requirement, and also to coordinate with NTPC for proper interfacing of NTPC's existing system e.g. Contract Labor Information Management System (CLIMS), NTPC's existing Access Control System with all other equipment and systems shall be supplied by BHEL. SPMS shall be integrated with NTPC's Project monitoring center (PMC) through NTPC LAN. All hardware & software e.g. Firewall with IPS shall be provided by BHEL.

### 21.11 Quality Control

#### i. Smart Storage area/yard monitoring

All storage area including the open yards and covered sheds shall be equipped with smart storage monitoring system. All the boundaries of the storage areas shall be geofenced with fixed camera and entire inside area of storage (both open yards and covered sheds) shall be

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXI: SPECIAL FEATURE

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covered with PTZ cameras such that there shall not be any dark patch. Minimum 80 number of CCTV cameras shall be installed. All camera shall have analytics to identify storage condition, water logging, excess vegetation, any intrusion. In addition to this, each PTZ camera shall have auto tracking analytics to track any intruder. All hardware and software required to meet above intent shall be supplied by BHEL. Feed of all these cameras shall be available in quality control room.

ii. Quality control Room –

BHEL shall establish Quality control room. It shall have all the real time data of the PWHT (Post Weld Heat Treatment) & CCTV cameras feed installed at strategic locations in the plant like SG, TG area where erection work is in progress and digital records of NDT. Minimum 25 no of Camera is considered for this purpose. Locations of these cameras will keep on changing depending upon the requirement at site. All hardware and software required to meet above intent shall be supplied by BHEL.

Quality control room will not be a dedicated physical room, rather all the data will be available on server & two no of LED screens will be placed adjacent to the Head of FQA for monitoring the project progress activities.

iii. Heat Treatment Smart PWHT -

**Pre-heating, post-heating and post-weld stress relief heat treatment chartless recorder / IIOT sensors duly password protected with a connectivity to remote server /Cloud.**

iv. Computed Radiographic Testing (RT)–

Computed RT shall be used as an advanced Engineering Practice. BHEL/its contractor shall ensure **minimum 10% computed radiography of weld joint** shall be performed in construction phase.

BHEL/its contractor shall ensure the transfer & storage of these records in Server.

### 21.12 Safety Control Room:

BHEL shall supply and install IP based CCTV system along with IP based announcement system which shall be used for monitoring safety during construction from Safety control room. It shall be possible to make announcements to alert the workers whenever required. These cameras shall be installed at all strategic locations in the plant area. Initially these installations will be temporary & locations will keep on changing depending upon the work in progress.

Drone based safety monitoring shall be done during day to monitor critical works at a close range. The images / Video feed from drone shall have sufficient resolution to identify the work under progress.

Analytics for Safety vest and helmet shall be deployed on all 25 nos. of cameras and any safety violation shall be alerted through IP based announcement system. Any over speeding of vehicle shall also be warned through speakers automatically.

24/7 safety control room shall be functional.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXII: Tanks Fabrication and Installation

Broad scope of work: Fabrication and installation of Tanks including fixing of items shall be in the scope of Agency. BHEL shall provide Structural steel for fabrication of Tanks

Details of Mics. Tanks is mentioned hereunder:

MISC TANKS DETAILS					
S.No	NAME OF TANK	No. of Tanks	Tentative DIA OF TANK (IN METER)	Tentative HEIGHT OF TANK (In Mtr.)	Remarks
1	DM STORAGE TANK	2	16.0	12.0	Inside and outside painting shall be in the scope of bidder
2	CONDENSATE STORAGE TANK	2	8.5	8.2	
3	FIRE WATER TANK	2	16.5	13.5	
4	PRIMARY HYDROCYCLONE FEED TANK	1	6.0	6.4	Outside painting shall be in the scope of bidder, However, inside rubber lining work is not in the scope of bidder. Scaffolding arrangement for rubber lining work shall be in the scope of bidder.
5	SECONDARY HYDROCYCLONE FEED TANK	1	5.0	5.6	
6	WASTE WATER TANK	1	6.5	6.7	
7	FILTRATE WATER TANK	1	5.0	5.0	
8	LIMESTONE SLURRY STORAGE TANK	2	12.0	12.3	
9	AUXILIARY ABSORBENT TANK	1	12.5	12.5	
10	PROCESS WATER TANK	2	5.0	6.0	
11	BELT WASH TANK	2	3.5	3.5	
12	CAKE WASH TANK	2	3.5	3.5	

Note:

1. Necessary work related to tank commissioning shall be in the scope of bidder.
2. Approximate cumulative weight for all tanks will be 800 MT
3. Paint schedule is enclosed.
4. Tanks Drawings are enclosed.
5. FQP for Tanks are enclosed.

Painting: Complete painting works including surface preparation (applicable for Mics Tanks): All structural steel shall be supplied from BHEL. Further works such as fabrication, erection, surface preparation and painting as per specification shall be applicable in the scope of contractor, including supply of the required paints and primers and associated consumables.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXIII: SPECIFIC INCLUSION

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### 23.0 SPECIFIC INCLUSIONS

- i. All terminal connections for equipment covered in this specification.
- ii. It may be specifically noted that it should not be construed or claimed by the contractor that with the technical specification and “exclusions and/or inclusions” detailed in this tender specification, BHEL has covered the entire scope of work and/or the details thereof to be executed by the contractor.
- iii. Contractor shall be responsible for all necessary liaisoning work with Statutory Authority towards the certification of installation / works. All incidental expenses shall be borne by Contractor. BHEL/BHEL's Customer shall be providing technical assistance, drawing & document for submission to Statutory Authority. Contractor shall provide all logistics services in this regard. All registration/statutory inspection fees required other statutory laws/permits/approvals and/or licenses during construction phase have to be paid by contractor. All other arrangements for site visits periodically by the Inspectorate to site, Inspection certificate etc. will have to be made by contractor. BHEL will not make any payment towards fee to the Inspectorate in connection with contractor's Welders/Electricians qualification tests etc.
- iv. All the required welding electrodes (other than BHEL supplied) and other consumables (as applicable) as approved by BHEL shall be arranged by contractor at his cost. It shall be the responsibility of the contractor to obtain prior approval of BHEL/NTPC, before procurement, regarding manufacturer etc.
- v. Batch test certificates shall be made available for verification & record before the actual use of the consumables. BHEL reserves the right to reject the use of any consumables, if found non-acceptable because of bad quality, deterioration in quality due to improper storage, shelf life expiry, unapproved type / brand etc.
- vi. The contractor shall provide all consumables required for carrying out the work covered under this scope of work .

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXIV: Specific Exclusion

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### 24.1 Specific Exclusion:

The following works are specific exclusions from the scope of work under erection, testing & commissioning of tender specification-

- i. All electrical and control & instrumentation items except those specified elsewhere in these specifications.
- ii. E&C work of cable trays, cables and earthing etc.
- iii. Control panels, EPMS, MCC etc.
- iv. Electrical & C&I items of handling system.
- v. Civil works except to the extent specifically indicated elsewhere in this tender.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXV: Welding Schedule

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Following points may be noted with respected to the Welding schedule

Erection/Final Welding Schedule of subject Project shall be made available during Erection.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXVI : Bill of Quantities and % Weightage of Individual Items

**Package Description:** Erection, Alignment, Bolting/Welding, Roofing & Cladding Work, supply of all Material (As per TCC and BOQ), Consumables, labour, tools and plants, Supply and application of touchup painting as and wherever required including Handling of Materials at BHEL / Client's Stores / Storage yard and transportation of

1. **Package-A:** Erection of Power House Unit 1 & 2 (incl CCR) structure and other mics. buildings including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.
2. **Package-B:** Erection of Ash Handling Plant structure, FGD Structure, Tank fabrication & installation and other mics. building Structure including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.
3. **Package-C:** Erection of Coal Handling Plant structure and other mics. building Structure including supply & installation of items as per BOQ at 2X660 MW NTPC Talcher Odisha.

SECTION	DESCRIPTION OF PACKAGES / ITEM OF WORK	Weightage w.r.t Total Quoted Price
A	Erection of Structure	0.973407217120736
B	Execution of Other BOQ items	0.026592782879265
C	Execution/Mobilisation of special resources (ORC/PVC Shall Not be applicable on Section C)	-
	<b>Total Contract Value</b>	<b>A + B + C</b>

SN	Section A: Contract (Main Package)	QTY	UOM	Weightage/ Factor "X"
A.1	Structure Erection	60,187.892	MT	0.919658913358895
A.2	Tank Fabrication cum installation	1000.000	MT	0.032574784681541
A.3	Structure Fabrication	2,000.000	MT	0.047766301959564

Section B: Other BOQ items				
SN	Contract (Main Package)	QTY	UOM	Weightage/ Factor "X"
900	DOORS & WINDOWS: Doors, windows, ventilators, louvers, roof ventilators, rolling shutters, partitions including all labour, material (unless otherwise specified in BOQ/contract specification), equipments, transportation, handling, preparation of working drawings etc. at all level as per specification, drawings and as directed by engineer - in - charge.			

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXVI : Bill of Quantities and % Weightage of Individual Items

Section B: Other BOQ items				
SN	Contract (Main Package)	QTY	UOM	Weightage/ Factor "X"
909	<p>Providing and fixing anodised aluminium work of Jindal, Hindalco or other equivalent approved make for door frames, windows, ventilators, partitions, railing etc with extruded standard tubular and other sections including all fittings &amp; fixtures and accessories of approved make conforming to IS733 and IS1285, anodised and electro color dyed to required shade according to IS 1868 (minimum anodic coating of grade AC15), fixed with rawl plugs, expansion fasteners, SS screws or with fixing clips, including necessary filling of gaps at junctions, at top, bottom and sides with required PVC/neoprene felt for bi-metalic protection etc. including preperation of working drawings, aluminium cleat angle, aluminium snap-on-beading for glazing/panelling, stair case tread nosing, with all fittings and fixtures (like tower bolts, handles, door stopper with rubber shoes, 'L' drops, stays, floor springs, hydraulic door closures etc.), CP brass/stainless steel screws, providing and fixing hinges/pivots, and making provision for fixing of fitting wherever required including cost of PVC/neoprene gasket, all complete as per drawing, specification and instructions of engineer in charge. including providing and fixing of 6 mm thick clear reflective toughened safety glass of Saint Gobain(India) or Asahi (India) or equivalnet make and should have solar factor 25% or less, Maximum U-vlaue 3.3W/SQMK, VLT min 30%, light reflection internal 10 to 15%, light reflection external 10 to 20%, shading coefficient (0.25-0.28) (incl Supply) Weight of aluminium section only shall be measure for the payment.</p> <p>Payment Terms:  a) On receipt of material site - 60%  b) Execution as per item description - 40%</p>	11425	Kg	0.239103406723462
1518	<p>Supply &amp; fixing FRP (fibre reinforced plastic) sheets 2 mm thick including GI hooks/ J or L bolts, nuts, washers, bitumen washers etc. complete including overlap 100mm .</p> <p>For Supply 60% of item rate shall be payable and for installation/execution 40% of item rate shall be payable</p>	840	Sqm	0.044033609673431

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXVI : Bill of Quantities and % Weightage of Individual Items

Section B: Other BOQ items				
SN	Contract (Main Package)	QTY	UOM	Weightage/ Factor "X"
2328	Supply, fixing lightning arrester and air terminal over roof of power house building, pump house and other structures including all materials, labour, electrodes etc complete (all materials to be supplied by the contractor). For Supply 60% of item rate shall be payable and for installation/execution 40% of item rate shall be payable	11	NO.	0.001701856347115
A2326	Providing and fixing 20mm square MS bar post with suitable MS flat and CP teakwood handrails etc. all complete. For Supply 60% of item rate shall be payable and for installation/execution 40% of item rate shall be payable	600	RM	0.013555192825211
1	Providing engineering consultancy services for Architectural design & drawings of CCR (Central control room in powerhouse building) in harmony with the overall plant and presented in the form of presentation drawings, including 3-D perspective rendered views, panoramic views, walkthrough, with color schemes, lighting design, as per specification including preparation of integrated services drawings in co-ordination with electrical, HVAC & fire systems etc. and taking approval on drawings from BHEL/customer (All complete). Perspective coloured views shall be submitted in Hard Copy in Laminated A-1 Size (Two Numbers) as required in the desired format. Structural design & drawing, of buildings & foundations are in scope of BHEL and not included in scope of bidder. The scope of bidder shall include coordination with respect to HVAC, electrical & fire fighting systems & space requirements for electrical facilities in consultation with BHEL/customer. Engineering services of acoustic design, interior architecture, PA system, planning for firefighting system as per inputs provided by BHEL, ...	1	Set	0.090619673483308

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXVI : Bill of Quantities and % Weightage of Individual Items

Section B: Other BOQ items				
SN	Contract (Main Package)	QTY	UOM	Weightage/ Factor "X"
Cont...1	Cont....external & internal finishes, plumbing & sanitation, water supply system, false ceiling, internal partitions, reception, glazing,etc. are also included in this item. Any additon/changes in design as per customer requirement during detailed engineering stage, no extra payment is admissible. All design and drawings shall be submitted in soft and hard copies along with 3-D model and shall be PDS/PDMS compliant for transfer to complete plant PDS/ PDMS model.Bidder shall also provide BOQ & specification of finishing items in a generalized fashion in consultation with BHEL Civil design wing, during detailed engineering stage for further sub-contracting of finishing works			
2311a	Providing and fixing in position of permanent mild steel bolts (class 4.6 as per IS : 1367 and grade `C' as per IS: 1363) and nuts, washers etc. up to and inclusive of 39 mm diameter and upto 300mm long for structural steel work etc all complete.	4429	KG	0.014200467617418
2312a	Providing and fixing in positing of high strength structural bolts (of property class 8.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers and nut as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	126393	KG	0.405246846584236
A2312a	Providing and fixing in positing of high strength structural bolts (of property class 10.8 and product grade `C' as per IS: 1367) and conforming to IS: 3757 and high strength structural hardened and tempered nuts (of property class `8' as per IS:1367) conforming to IS:6623 with hardened and tempered washers and Nut as per IS:6649 etc. up to and inclusive of 39 mm diameter and upto 300 mm long for structural steel work etc all complete.	59739	KG	0.191538946745819

**Section C: Execution/Mobilisation of special resources (PVC/ORC Shall Not be applicable on Section C)**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXVI : Bill of Quantities and % Weightage of Individual Items

SN	Contract (Main Package)	QTY	UOM	Weightage/ Factor "X"
1.0	Construction and maintenance of labour colony having adequate no. of rest rooms along with toilets & fencing etc. as per drawing attached and TCC including associated civil and structural works on built, own and operate basis. Proposal for construction of these hutment is to be got approved from BHEL before organizing material and execution. Payment towards construction/development of labour colony of 01 Sets as per drawing attached and as above shall be paid by BHEL as per following payment terms: i) On receipt of material for each set of labour colony at site - 50% ii) On completion of installation of labour colony for each set - 20% iii) Handing over for accommodation of labour with all amenities for each set - 30% Land for labour colony to be arrange by contractor outside project area, Necessary levelling/dressing of land shall be done by the contractor. All arrangement for electricity and drinking/service water to be arranged by the contractor within his quoted price.	<b>Labour colony set</b>	3	<b>FIXED VALUE</b>
2.0	Backhoe Loader/JCB	<b>Months</b>	8	<b>FIXED VALUE</b>
3.0	Man lifter of min. 17mtr height capacity	<b>Months</b>	12	<b>FIXED VALUE</b>
4.0	Deployment of Safety personals at site	<b>Manmonth</b>	128	<b>FIXED VALUE</b>
5.0	Deployment of Computer operator at site	<b>Manmonth</b>	128	<b>FIXED VALUE</b>
6.0	Transportation charges towards extra movement of material (beyond 5 Kms) from BHEL storage yard to Project premises (in case storage yard is beyond 5 Km)= Rate is calculated considering storage yard shall be at 10 KM approx. - Rate shall vary depending upon the actual distance of Storage yard from Project gate. Hoever, Rate of Rs. 5 per Km per MT shall remain fixed	<b>MT</b>	61188	<b>Rs. 5 per KM per MT</b>

Note: The quantity indicated in the BOQ is approximate only and is liable for variation. Payment will be as per actual quantity executed as certified by BHEL Engineer above Unit rate of individual items of BOQ.



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXVI : Bill of Quantities and % Weightage of Individual Items

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### Instructions to the bidders

1. Schedule of Rates and Quantities consist of the followings:
  - (i) Section-A1: Structure Erection
  - (ii) Section-A2: Tank Fabrication cum Installation
  - (iii) Section-A3: Structure Fabrication
  - (iv) Section-B-1: Other BOQ Items
  - (v) Section-C: Execution/Mobilisation of special resources (Prices Fixed by BHEL, PVC & ORC **Shall Not be applicable on Section C**)
2. **Bidders to quote Total Lump-sum Price for Section-A , Section-B in Rupees in VOL-II-Price-Bid-2911 at BHEL E-procurement Portal.** Any other entry elsewhere in the offer of the bidder shall be treated as Null and Void.
3. Prices for Section-C: Execution/Mobilisation of special resources are already fixed by BHEL.
4. Offer evaluation (L-1, L-2 status) of the bidders shall be done based on the Total Lumpsum Price of **Section-A+ Section-B** as quoted in the Volume II Price Bid.
5. Final awarded price shall be based on Total summation of prices of **Section-A+ Section-B + Section C and individual packages (Package A, Package B & Package C) shall be awarded in line with modality of award as mentioned in Annex XII of NIT.**
6. BHEL has pre-fixed the Weightage/Factor as detailed above in this chapter for deriving the Unit Rates. By multiplying BHEL pre-fixed Weightages / Factor and the quoted prices and dividing by the quantities ; unit rate of individual items shall be derived. Unit Rate/Item Rate thus arrived shall be rounded off to two decimal places.
7. Based on the quantities of individual item and the unit rates arrived in Sl No 6 above, the total amount for individual items shall be derived. Total amount thus derived shall be rounded off to two decimal places.
8. Section C: Consists of Execution/Mobilization of special resources, for which Rates are fixed throughout the contract period and Extension period (PVC and ORC shall not be applicable for Items under section C).
9. **Bidders to note that Package A, Package B & Package C is an item rate contract. Payment shall be made for the actual quantities of work executed at the unit rate arrived above.**
10. For the convenience of bidders, BHEL has issued an excel sheet with all the requisite formulae as described above. **However, the referred excel sheet shall not form part of contract document. Further, this sheet should not be uploaded at the e-Portal.**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-XXVII : Technical Annexure

### THIS TENDER SPECIFICATION CONSISTS OF FOLLWING ANNEXURE:

S.N.	DESCRIPTION
Annexure-1	TnP Hire Charges 01.09.2021 to 31.08.2023
Annexure-2	Guidelines for NDE and Heat Treatment Agency-PSWR
Annexure-3	Painting Schedule
Annexure-4	Labour Colony drawing
Annexure-5	FGD Tanks Drgs
Annexure-6	FQP DM & CST
Annexure-7	Technical Specification – NTPC
Annexure-8	Rest Room Drawing
Annexure-9	Talcher Minimum Wages
Annexure-10	Painting Schedule for Tanks
Annexure-11	Approved Vendor List
Annexure-12	Sketch Drg. for DM & CST
Annexure-13	4540-001-138-PVM-B-016_0 DM Storage and CST Tank
Annexure-14	4540-001-315-PVC-C-0003A_0 MPH Unit 1 Layout
Annexure-15	4540-001-315-PVC-C-0003A_0 MPH Unit 2 Layout

**NOTE- ALL THE ABOVE MENTIONED ANNEXURE ARE UPLOADED ON E-PROCUREMENT PORTAL AS VOL-I-E-2911**