

TENDER SPECIFICATION No.

SI No	Tender Specification Number	Unit Number & Project
1	BHE / PW / PUR / WNT2 – ESP / 1525	800 MW GSECL Wanakbori

COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF ESP AND ITS AUXILIARIES, INCLUDING DUCT SUPPORTING STRUCTURE, ESP OUT LET DUCT UP TO CHIMNEY, LINING & INSULATION, FINAL PAINTING ETC.

AT

1 X 800 MW GSECL WANAKBORI PROJECT

IN GUJRAT STATE

VOLUME – I

CONSISTING OF:

- Notice Inviting Tender,
- Volume-IA : Technical Conditions of Contract,
- Volume-IB : Special conditions of Contract,
- Volume-IC : General conditions of Contract
- Volume-ID : Forms & Procedures



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

CONTENTS

Volume No	Description	No. of pages	Hosted in website bhel.com as files titled
NIL	Tender Specification Issue Details		(Part of <u>Vol-IA-1525</u>)
NIL	Notice Inviting Tender		(Part of <u>Vol-IA-1525</u>)
I-A	Technical Conditions of Contract		Vol-IA-1525
I-B	Special Conditions of Contract		Vol-IBCD-1525
I-C	General Conditions of Contract		(Part of Vol-IBCD- 1525)
I-D	Forms & Procedures		(Part of Vol-IBCD-1525)
II	Price Bid Specification		Vol-II-1525

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EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR TENDER SUBMISSION Refer Notice Inviting Tender

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

M/s.

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PLEASE NOTE:
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)
Place: Nagpur
Date:

1525

NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



Ref: BHE / PW / PUR / WNT2-ESP /1525

Date: 12/08/2015

NOTICE INVITING TENDER (NIT)
**NOTE: BIDDER MAY DOWNLOAD FROM WEB SITES
OR
PURCHASE TENDERS FROM THIS OFFICE ALSO**

=====

To

Dear Sir/Madam

Sub: NOTICE INVITING TENDER

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

1.0 Salient Features of NIT

SL NO	ISSUE	DESCRIPTION
i	TENDER NUMBER	BHE / PW / PUR / WNT2 – ESP / 1525
ii	Broad Scope of job	COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF ESP AND ITS AUXILIARIES , INCLUDING DUCT SUPPORTING STRUCTURE, ESP OUT LET DUCT UP TO CHIMNEY, LINING & INSULATION, FINAL PAINTING ETC AT 1 X 800 MW GSECL WANAKBORI PROJECTIN GUJRAT STATE
iii	DETAILS OF TENDER DOCUMENT	
a	Volume-IA	<i>Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc</i> Applicable
b	Volume-IB	<i>Special Conditions of Contract (SCC)</i> Applicable
c	Volume-IC	<i>General Conditions of Contract (GCC)</i> Applicable
d	Volume-ID	<i>Forms and Procedures</i> Applicable
e	Volume-II	<i>Price Schedule (Absolute value).</i> Applicable
iv	Issue of Tender Documents	1. <u>Sale from BHEL PS Regional office at :Nagpur</u> Start : 12/08/2015 Applicable

**BHEL PSWR
Notice Inviting Tender**

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		<p>Closes: 07/09/2015 , Time :16.00 Hrs</p> <p>2. From BHEL website (www.bhel.com) Tender documents can however be downloaded from website till due date of submission</p>	
v	DUE DATE & TIME OF OFFER SUBMISSION	<p>Date : 08/09/2015 Time :15.00Hrs Place : BHEL PS Regional office at :Nagpur Tenders being submitted through representative shall be submitted at dispatch section of PSWR HQ Office after making entry/registration at the reception. For any assistance on the matter kindly contact following officials: 1. Pratish Gee Varghese / Sr Engineer (Purchase) 2. Shivkesh Meena / Engineer (Purchase)</p>	Applicable
vi	OPENING OF TENDER	<p>1 hours after the latest due date and time of Offer submission Notes: (1) In case the due date of opening of tender becomes a non-working day, tenders shall be opened on next working day at the same time. (2) Bidder may depute representative to witness the opening of tender</p>	Applicable
vii	EMD AMOUNT	Rs 2,00,000/- (Rupees Two Lakhs Only)	Applicable
viii	COST OF TENDER	Rs 2000/-.	Applicable
ix	LAST DATE FOR SEEKING CLARIFICATION	<p>Date: Atleast 5 days before the due date of offer submission Along with soft version also, addressing to undersigned & to others as per contact address given below</p>	Applicable
x	SCHEDULE OF Pre Bid Discussion (PBD)	Date : Not applicable.	Not applicable.
xi	INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)	<p>Shri D.R.S Chaudhary, IAS (Retd.) Flat No. L-202 & L-203 (1st Floor) Ansal Lake View Enclave Shamla Hills Bhopal- 462 013 (M.P.) Email: dilip.chaudhary@icloud.com</p>	Applicable (Bidders to submit duly filled & signed Annexure III of NIT)
xii	Latest updates	<p>Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendums) and not in the newspapers. Bidders to keep themselves updated with all such information</p>	

2.0 The offer shall be submitted as per the instructions of tender document and as detailed in this NIT. Bidders to note specifically that all pages of tender document, including these NIT pages of this particular tender together with subsequent correspondences shall be submitted by them, duly signed &

stamped on each page, as part of offer. Rates/Price including discounts/rebates, if any, mentioned anywhere/in any form in the techno-commercial offer other than the Price Bid, shall not be entertained.

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

Sl no	Description	Remarks
	Part-I A	
	ENVELOPE – I superscribed as : PART-I (TECHNO COMMERCIAL BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION:	
	CONTAINING THE FOLLOWING:-	
i.	Covering letter/Offer forwarding letter of Tenderer.	
ii.	Duly filled-in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above.	

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	<p>Note:</p> <p>a. In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained.</p> <p>b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding.</p> <p>i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL</p> <p>ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender</p>	
iii.	<p>Supporting documents/ annexure/ schedules/ drawing etc as required in line with Pre-Qualification criteria.</p> <p>It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact ph no, FAX no, etc.</p>	
iv.	All Amendments/Correspondences/Corrigenda/Clarifications/ Changes/ Errata etc pertinent to this NIT.	
v.	Integrity Pact Agreement (Duly signed by the authorized signatory)	If applicable
vi.	Duly filled-in annexures, formats etc as required under this Tender Specification/NIT	
vii.	Notice inviting Tender (NIT)	
viii.	Volume – I A : <u>Technical</u> Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	
ix.	Volume – I B : Special Conditions of Contract (SCC)	
x.	Volume – I C : General Conditions of Contract (GCC)	
xi.	Volume – I D : Forms & Procedures	
xii.	Volume – II (UNPRICED – without disclosing rates/price, but mentioning only ‘QUOTED’ or ‘UNQUOTED’ against each item	
xiii.	Any other details preferred by bidder with proper indexing.	

	PART-I B	
	ENVELOPE – II superscribed as:	

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

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

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

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

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

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

9.0 Assessment of Capacity of Bidders:

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

I. **LOAD**: Load takes into consideration **ALL** the contracts of the Bidder under execution with BHEL Regions, irrespective of whether they are similar to the tendered scope or not. The 'Load' is the sum of the unit wise identified packages (refer Table-1) for contracts with BHEL Regions. The cut off month for reckoning 'Load' shall be the month, two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:

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

i). Total number of Packages

Total number of Packages in hand = P

Where

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

II. **PERFORMANCE**: Here 'Monthly Performance' of the bidder for all the packages (**under execution**/ executed during the 'Period of Assessment' in all the Power Sector Regions of BHEL) **SIMILAR** to the

packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the month two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:

(Note: For example if 'latest date of bid submission' is in Aug 2011, then the 'performance' shall be assessed for a 6 month period upto and inclusive of June 2011, for 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) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced. Total number of similar packages for all Regions = P_T (ie $P_T = P_1 + P_2 + P_3 + P_4 + \dots + P_N$)
- b) Number of Months ' 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 ($S_{1-1}, S_{1-2}, S_{1-3}, S_{1-4}, S_{1-5}, \dots, S_{1-N}$) for similar package P_1 , for the 'period of assessment' ' T_1 ' (i.e $S_1 = S_{1-1} + S_{1-2} + S_{1-3} + S_{1-4} + S_{1-5} + \dots + S_{1-N}$). 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):

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

$$= \frac{\text{Aggregate of months for each of the similar package for which performance should have been evaluated in all the Regions}}{\text{Total number of similar packages for all Regions}}$$

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

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

f) Table showing methodology for calculating ‘a’, ‘b’ and ‘c’ above

Sl o	Item Description	Details for all Regions							Total
		(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	
1	Similar Packages for all Regions → (under execution/ executed during period of assessment)	P ₁	P ₂	P ₃	P ₄	P ₅	...	P _N	Total No of similar packages for all Regions = P_T ie Sum (Σ) of columns (iii) to (ix)
2	Number of Months for which ‘Monthly Performance Evaluation’ as per relevant formats should have been done in the ‘period of assessment for corresponding similar Package (as in row 1)	T ₁	T ₂	T ₃	T ₄	T ₅	...	T _N	Sum (Σ) of columns (iii) to (ix) = T_T
3	Monthly performance	S ₁₋₁ ,	S ₂₋₁ , S ₂₋₂ ,	S ₃₋₁ , S ₃₋	S ₄₋₁ , S ₄₋	S ₅₋₁ , S ₅₋	S _{N-1} , S _{N-2} ,	-----

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	scores for the corresponding period (as in Row 2)	S ₁₋₂ , S ₁₋₃ , S ₁₋₄ , ... S _{1-T1}	S ₂₋₃ , S ₂₋₄ , ... S _{2-T2}	2, S ₃₋₃ , S ₃₋₄ , 4, ... S _{3-T3}	2, S ₄₋₃ , S ₄₋₄ , 4, ... S _{4-T4}	2, S ₅₋₃ , S ₅₋₄ , 4, ... S _{5-T5}	...	S _{N-3} , S _{N-4} , ... S _{N-TN}	
4	Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3)	S ₁	S ₂	S ₃	S ₄	S ₅	...	S _N	Sum (Σ) of columns (iii) to (ix) = S_T

- ii) Calculation of Overall ‘Performance Rating’ (**R_{BHEL}**) in case ‘similar Package/Packages’ for the tendered scope ARE NOT AVAILABLE, during the ‘Period of Assessment’:

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

- a) ‘Period of Assessment.
- b) 12 months preceding the cut-off month
- c) 24 months preceding the cut-off month
- d) 36 months preceding the cut-off month

In case, R_{BHEL} cannot be calculated as above, then Bidder shall be treated as ‘NEW VENDOR’. Further eligibility and qualification of this bidder shall be as per definition of ‘NEW VENDOR’ described in ‘Explanatory Notes’

- iii) Factor “L” assigned based on Overall Performance Rating (R_{BHEL}) at Power Sector Regions,:

Sl no	Overall Performance Rating (R _{BHEL})	Corresponding value of ‘L’
1	=60	NA
2	> 60 and ≤ 65	0.4
3	> 65 and ≤ 70	0.35
4	> 70 and ≤ 75	0.25
5	> 75 and < 80	0.2

6	≥ 80	NA
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III. 'Assessment of Capacity of Bidder':

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

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

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

Note:

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

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if $P \leq P_{Max}$ (where P is calculated as per clause 9.I)

IV. Explanatory note:

- a) Similar package means Boiler or ESP or Piping or Turbine or Civil or Structure or Electrical or CI, etc at the individual level irrespective of rating of Plant, and irrespective of whether the subject tender is a single package or as part of combined/composite packages. Normally Boiler, ESP, Piping, Turbine, Electrical, CI, Civil, Structure, etc is considered individual level of package. For example in case the tendered scope is a Boiler Vertical Package comprising of Boiler, ESP and Power Cycle Piping (i.e the 'identified packages as per Table-1 below), the 'PERFORMANCE' part against sl no II above, needs to be evaluated considering all the identified packages (ie Boiler, ESP and Power Cycle Piping) and finally the Bidder's capacity to execute the tendered scope is assessed in line with III above
- b) Identified Packages (Unit wise)

Table-1

	Civil	Electrical & CI	Mechanical
	i). Enabling works	i). Electrical	i). Boiler & Aux (All types including CW Piping if applicable)
	ii). Pile and Pile Caps	ii). CI	ii). Power Cycle Piping/Critical Piping
	ii). Civil Works including foundations	iii). Others (Elec & CI)	iii). LP Piping
	v). Structural		iv). ESP

	Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil)		v). Steam Turbine Generator set & Aux vi). Gas Turbine Generator set & Aux vii). Hydro Turbine Generator set & Aux viii). Turbo Blower (including Steam Turbine) ix). Material Handling x). Material Management xi). Material Handling & Material Management xii). Others (Mechanical)
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c) Bidders who have not been evaluated for at least six package months in the last 36 months in the online BHEL system for contractor performance evaluation in BHEL PS Regions, wef July'2010 shall be considered "NEW VENDOR".

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

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

The "FIRST TIMER" tag shall remain till execution of work for a period of not less than 09 months, from the commencement of work of first package

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

After removal of 'FIRST TIMER' tag, the Bidder shall be considered 'QUALIFIED' for the future tenders subject to

satisfying all other tender conditions including 'Capacity Evaluation of Bidders'.

- d) In the unlikely event of all bidders shortlisted against Technical and Financial Qualification criteria not meeting the criteria on 'Assessment of Capacity of Bidders' detailed above, OR leads to a single tender response on applying the criteria of 'Assessment of Capacity of Bidders' or due to non-approval by Customer, then BHEL at its discretion reserves the right to consider the further processing of the Tender based on the **Overall Performance Rating 'R_{BHEL}'** only, starting from the upper band.
- e) 'Under execution' shall mean works in progress as per the following:
- i. up to Boiler Steam Blowing in case of Steam Generator and Auxiliaries
 - ii. upto Synchronisation in case of all other works excepting sl no (i) and (iii)
 - iii. Upto execution of at least 90% of anticipated contract value in case of Civil & Structures (unit wise), Enabling works and upto 90% of material unloading (in tonnage) as per the original contract in case of MM Package.
- Note : BHEL at its discretion can extend (or reduce in exceptional cases in line with Contract conditions) the period defined against (i), (ii) and (iii) above, depending upon the balance scope of work to be completed.
- f) Performance evaluation in CL 9 above is applicable to Prime bidder and consortium partner (or Technical tie up partner) for their respective scope of work

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

11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned.

BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

- 12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.
- 13.0 In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.
- 14.0 Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
- 15.0 Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**
- 16.0 The Bidder has to satisfy the Pre Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.
- 17.0** In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorised representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.
- 18.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.

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

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

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

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

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

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

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

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

23.3 Number of partners for a consortium Bidding (or Technical Tie up) shall be as specified in the PQR

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

- 23.5 In order to be qualified for the tender, Prime Bidder and Consortium partner or partners shall satisfy (i) the Technical 'Pre Qualifying Requirements' specified for the respective package, (ii) "Assessment of Capacity of Bidder' as specified in clause 9.0
- 23.6 Prime Bidder shall comply with additional 'Technical' criteria of PQR as defined in 'Explanatory Notes for the PQR'
- 23.7 Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified
- 23.8 In case customer approval is required, then Prime Bidder and Consortium Partner or partners shall have to be individually approved by Customer for being considered for the tender.
- 23.9 Prime Bidder shall be responsible for the overall execution of the contract
- 23.10 In case of award of job, Performance shall be evaluated for Prime Bidder and Consortium Partner or partners for their respective scope of work(s) as per prescribed formats
- 23.11 In case the Consortium partner or partners back out, their SDs shall be encashed by BHEL. In such a case, other consortium partner or partners meeting the PQR have to be engaged by the Prime Bidder, and if not, the respective work will be withdrawn and executed on risk and cost basis of the Prime Bidder. The new consortium partner or partners shall submit fresh SDs as applicable.
- 23.12 In case the prime Bidder withdraws, the whole contract shall be considered cancelled and short closed.
- 23.13 After execution of work, the work experience shall be assigned to the Prime Bidder and the consortium partner or partners for their respective scope of work. After successful execution of two similar works with the same consortium partner or partners under direct orders of BHEL, the Prime Bidder shall be eligible for becoming a 'stand alone' bidder for similar works, subject to certification from BHEL about the active involvement of the Prime Bidder for satisfactory execution of the works.
- 23.14 The consortium partner shall submit SD equivalent to 2% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value. In case there are two consortium partners, then each partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value.

- 23.15 In case of a Technical Tie up, all the clauses applicable for the Consortium partner shall be applicable for the Technical Tie up partner also
- 24.0 The bidder shall submit documents in support of possession of 'Qualifying Requirements' duly self certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.
- 25.0 The bidder may have to produce original document for verification if so decided by BHEL.
- 26.0 Order of Precedence
In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:
- a. Amendments/Clarifications/Corrigenda/Errata etc issued in respect of the tender documents by BHEL
 - b. Notice Inviting Tender (NIT)
 - c. Price Bid
 - d. Technical Conditions of Contract (TCC)—Volume-1A
 - e. Special Conditions of Contract (SCC) —Volume-1B
 - f. General Conditions of Contract (GCC) —Volume-1C
 - g. Forms and Procedures —Volume-1D

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

for BHARAT HEAVY ELECTRICALS LTD

AGM Pur

Enclosure

01. Annexure-1: Pre Qualifying criteria.
02. Annexure-2: Check List .
03. Annexure-3: Integrity Pact.
04. Annexure -4: Important Information

ANNEXURE - 1

PRE QUALIFYING CRITERIA

JOB	COLLECTION OF MATERIALS FROM BHEL/CLIENT'S STORES/STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING & COMMISSIONING, TRIAL OPERATION AND HANDING OVER OF ESP AND ITS AUXILIARIES , INCLUDING DUCT SUPPORTING STRUCTURE, ESP OUT LET DUCT UP TO CHIMNEY, LINING & INSULATION, FINAL PAINTING ETC AT 1 X 800 MW GSECL WANAKBORI PROJECT IN GUJRAT STATE
TENDER NO	BHE / PW / PUR / WNT2 – ESP / 1525

SL NO	PRE QUALIFICATION CRITERIA	Bidders claim in respect of fulfilling the PQR Criteria	
		Name and Description of qualifying criteria	Page no of supporting document. Bidder must fill up this column as per applicability
A	Submission of Integrity Pact duly signed (if applicable) (Note: To be submitted by Prime Bidder & Consortium/Technical Tie up partner jointly in case Consortium bidding is permitted, otherwise by the sole bidder)	NOT APPLICABLE	
B	<u>Technical</u> B.1) Bidder must have executed Erection, Testing and Commissioning of atleast One Boiler/ESP of One Unit of 190 MW or higher rating in the last seven (7) years as on latest date of offer submission OR B.2) Bidder must have executed Erection, Testing and Commissioning of atleast One STG of 400 MW or higher rating, under direct order of BHEL in the last seven (7) years as on latest date of offer submission	APPLICABLE	
C-1	<u>Financial</u> <u>TURNOVER</u> Bidders must have achieved an average annual financial turnover (audited) of Rs 435 Lakhs or more over last three Financial Years (FY) i.e. 2012-2013, 2013-14, 2014-15 OR 2011-2012, 2012-2013,	APPLICABLE	

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	2013-14 if Annual Accounts for FY 2014-15 are not audited.		
C-2	NETWORTH (only in case of Companies) Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive.	APPLICABLE	
C-3	PROFIT Bidder must have earned cash profit in any one of the three Financial Years as applicable in the last three Financial Years defined in 'C-1' above based on latest Audited Accounts.	APPLICABLE	
D	Assessment of Capacity of Bidder to execute the work as per sl no 9 of NIT (if applicable)	APPLICABLE	By BHEL
E	Approval of Customer (if applicable) Note: Names of bidders (including consortium/Technical Tie up partners in case consortium bidding is permitted) who stand qualified after compliance of criteria A to D shall be forwarded to customer for their approval.	APPLICABLE	BY BHEL
F	Price Bid Opening Note: Price Bids of only those bidders shall be opened who stand qualified after compliance of criteria A to E	APPLICABLE	BY BHEL
F	Technical Tie up criteria (if applicable)	Not Applicable	
<p><u>Explanatory Notes for the PQR (unless otherwise specified in the PQR):</u></p> <ol style="list-style-type: none"> 1. Bidder to submit Audited Balance Sheet and Profit and Loss Account for the respective years as indicated against C-1 above along with all annexures 2. In case audited Financial statements have not been submitted for all the three years as indicated against C-1 above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years i.e total divided by three. 3. C-2:-NETWORTH : Shall be calculated based on the latest Audited Accounts as furnished for C-1 above. Net worth = Paid up share capital + Reserves. (Net worth is required to be evaluated in case of companies) 4. C-3:- PROFIT : shall be NET profit (PAT + Non cash expenditure viz depreciation) earned during any one of the three financial years as in C-1 above 5. 'Additional' Criteria in respect of 'Technical' criteria of PQR (as in 'B' above) for Civil, Electrical, CI, unless otherwise specified :- <ol style="list-style-type: none"> 1. Bidder should have executed similar work of any one of the following: <ol style="list-style-type: none"> a. One (1) work of value not less than Rs XXX _____ OR b. Two (2) works of not less than Rs YYY _____ OR 			

	<p style="text-align: center;">e. Three (3) works of not less than Rs ZZZ (Value XXX, YYY, ZZZ shall be as indicated by BHEL</p> <p style="text-align: center;">2. 'Similar' work for criteria 5 above means</p> <p style="text-align: center;">a. Civil or Structures or Civil & Structures or Chimney respectively as applicable to the tendered scope in respect of 'CIVIL' Works</p> <p style="text-align: center;">b. Electrical works in respect of 'ELECTRICAL'</p> <p style="text-align: center;">c. CI works in respect of 'CI' Works</p> <p style="text-align: center;">d. Material Handling and/or Management works in respect of 'MM' works</p> <p>6. Time period for achievement of the 'Technical' criteria of PQR (as in 'B' above) will be the last 7 years ending on the 'latest date' of Bid submission</p> <p>7. 'EXECUTED' means the Vendor should have achieved the criteria specified in the Technical criteria of PQR (as in 'B' above) even if the Contract has not been completed or closed, Unless otherwise specified, for the purpose of 'Technical' criteria of PQR (as in 'B' above), the word 'EXECUTED' means:</p> <ol style="list-style-type: none">1. "BOILER LIGHT UP" in respect of Boiler & Aux and ESP2. Term 'Commissioning' indicated in PQR refers to 'assistance to commissioning' / 'commissioning'3. "SYNCHRONISATION" in respect of STG/GTG and 'SPINNING' in case of HTG4. "STEAM BLOWING COMPLETION" in respect of at least Main Steam Line of Power Cycle Piping5. "HYDRAULIC TEST" of the system in respect of Structures, Pressure parts/IBR Piping6. "CHARGING" in respect of power Transformers, Bus ducts, HT/LT switchgears.7. "Completion of RCC Shell and liner (steel or brick as per tendered scope) up to the HEIGHT specified using slip form" in case of RCC Chimney.8. Achievement of physical Quantities as per respective PQRs in respect of Civil & Structures and Piling Works9. 'Readiness for coal Filling" in respect of Bunker Structure Work.8. Boiler means HRSG or WHRB or any other types of Steam Generator consisting of Boiler structure, Non pressure parts and pressure parts.9. Critical/Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass, LP Bypass lines10. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5TPH where ever rating of HRSG/BOILER is mentioned in MW. Similarly, where ever rating of Gas Turbine is mentioned in terms of Frame size, ISO rating in terms of MW shall be considered for evaluation.11. In case the experience/PO/WO certificate enclosed by bidders do not have separate break up prices for the E&C portion of Electrical and CI Works, (i.e. the certificates enclosed are for composite order for supply and erection of Electrical & CI and other works if any), then value of Erection and Commissioning for the Electrical & CI portion shall be considered as 15% of the supply & erection of Electrical & CI, unless otherwise specifically indicated in the PQR.12. Scope for capital overhaul of STG shall cover Bearing Inspection work and overhauling of all cylinders of the Turbine unless otherwise specifically indicated
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	<p>in the PQR.</p> <p>13. In case the tendered scope is not a Pulverised Fuel Boiler, experience of Oil/Gas Fired Boilers also can be considered unless otherwise specifically indicated in the PQR</p> <p>14. The value of work (Experience submitted against PQR B) shall be updated as per the PVC indices for "All India Avg. Consumer Price Index for Industrial Workers" with base month as date of execution (completion of contract/work) and indexed upto two months prior to bid opening month.</p>
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BIDDER SHALL SUBMIT ABOVE PRE-QUALIFICATION CRITERIA FORMAT, DULY FILLED-IN, SPECIFYING RESPECTIVE ANNEXURE NUMBER AGAINST EACH CRITERIA AND FURNISH RELEVANT DOCUMENT IN THE RESPECTIVE ANNEXURES IN THEIR OFFER.

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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	Details of Contact person for this Tender	Name : Mr./Ms Designation: Telephone No: Mobile No: Fax No:	
4	EMD DETAILS	DD No: Date : Bank : Amount: Please tick (✓) whichever applicable:- ONE TIME EMD / ONLY FOR THIS TENDER	
		APPLICABILITY	BIDDER REPLY
5	Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format	Applicable	YES / NO
6	Whether Audited profit and Loss Account for the last three years submitted	Applicable	YES/NO
7	Whether Copy of PAN Card submitted	Applicable	YES/NO
8	Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed	Applicable	YES/NO
9	Whether duly filed & Signed Integrity Pact (Annexure III of NIT) submitted	Not Applicable	Not Applicable
10	Declaration by Authorised Signatory	Applicable	YES/NO
11	Whether No Deviation Certificate submitted	Applicable	YES/NO
12	Whether Declaration confirming knowledge about Site Conditions submitted	Applicable	YES/NO
13	Whether Declaration for relation in BHEL submitted	Applicable	YES/NO
14	Whether Non Disclosure Certificate submitted	Applicable	YES/NO
15	Whether Bank Account Details for E-Payment submitted	Applicable	YES/NO
16	Capacity Evaluation of Bidder for current Tender	Refer SI 9 of NIT	YES/NO
17	Tie Ups/Consortium Agreement are submitted as per format	Not Applicable	Not Applicable
18	Whether Power of Attorney for Submission of Tender/Signing Contract Agreement submitted	Applicable	YES/NO
19	Whether Analysis of Unit rates submitted	Applicable	YES/NO

NOTE: STRIKE OFF 'YES' OR 'NO', AS APPLICABLE

DATE:

AUTHORISED SIGNATORY
(With Name, Designation and Company seal)

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

ANNEXURE - 3

INTEGRITY PACT

Between

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

And

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

Preamble

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

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

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

Section 1 - Commitments of the Principal

- 1.1 The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principles:-
 - 1.1.1 No employee of the Principal, personally or through family members, will in connection with the tender for, or the execution of a contract, demand, take a promise for or accept, for itself or third person, any material or immaterial benefit which the person is not legally entitled to.

- 1.1.2 The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
- 1.1.3 The Principal will exclude from the process all known prejudiced persons.
- 1.2 If the Principal obtains information on the conduct of any of its employees which is a penal offence under the Indian Penal Code 1860 and Prevention of Corruption Act 1988 or any other statutory penal enactment, or if there be a substantive suspicion in this regard, the Principal will inform its Vigilance Office and in addition can initiate disciplinary actions.

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

- 2.1 The Bidder(s)/ Contractor(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.
- 2.1.1 the Bidder(s)/ Contractor(s) will not, directly or through any other person or firm, offer, promise or give to the Principal or to any of the Principal's employees involved in the tender process or the execution of the contract or to any third person any material, immaterial or any other benefit which he / she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- 2.1.2 The bidder(s)/ Contractors(s) will not enter with other Bidder(s) into any illegal or undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- 2.1.3 The Bidder(s)/ Contractor(s) will not commit any penal offence under the relevant IPC/PC Act; further the Bidder(s)/ Contractor(s) will not use improperly, for purposes of competition or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- 2.1.4 The Bidders (s)/ Contractor(s) will, when presenting his bid, disclose any and all payments he has made, and is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract.

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

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

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

Section 4 – Compensation for Damages

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

Section 5 – Previous Transgression

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

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

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

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

Section -7 Criminal Charges against violating Bidders/ Contractors/ Sub-contractors

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

Section – 8 Independent External Monitor(s)

- 8.1 The Principal appoints competent and credible Independent External Monitor for this Pact. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
- 8.2 The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, BHEL.
- 8.3 The Bidder(s)/ 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)/ Sib-contractor(s) with confidentiality.
- 8.4 The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the contract provided such meeting could have an impact on the contractual relations between the Principal and the Contractor. The parties offer to the Monitor the option to participate in such meetings.
- 8.5 As soon as the Monitor notices, or believes to notice, a violation of this agreement, he will so inform the Management of the Principal and request the Management to discontinue or take corrective action, or heal the situation, or to take other relevant action. The Monitor can in this regard submit non-binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.

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- 8.6 The Monitor will submit a written report to the CMD, BHEL within 8 to 10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
- 8.7 The CMD, BHEL shall decide the compensation to be paid to the Monitor and its terms and conditions.
- 8.8 If the Monitor has reported to the CMD, BHEL, a substantiated suspicion of an offence under relevant IPC/PC Act, and the CMD, BHEL has not, within reasonable time, taken visible action to proceed against such offence or reported it to the Vigilance Office, the Monitor may also transmit this information directly to the Central Vigilance Commissioner, Government of India.
- 8.9 The number of Independent External Monitor(s) shall be decided by the CMD, BHEL.
- 8.10 The word 'Monitor' would include both singular and plural.

Section 9 – Pact Duration

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

Section 10 – Other Provisions

- 10.1 This agreement is subject to Indian Laws and jurisdiction shall be registered office of the Principal, i.e. New Delhi.
- 10.2 Changes and supplements as well as termination notices need to be made in writing. Side agreements have not been made.
- 10.3 If the contractor is a partnership or a consortium, this agreement must be signed by all partners or consortium members.

- 10.4 Should one or several provisions of this agreement turn out to be invalid, the reminder of this agreement remains valid. In this case, the parties will strive to come to an agreement to their original intentions.
- 10.5 Only those Bidders/ Contractors who have entered into this agreement with the Principal would be competent to participate in the bidding. In other words, entering into this agreement would be a preliminary qualification.

For & On Behalf of the Principal
(Office Seal)

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

ANNEXURE IV

Annexure-4

IMPORTANT INFORMATION

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

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

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

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

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

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

- 1. The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site (www.bhel.com ---> Tender Notification -> List of Banned Firms)**
- 2. Refer Chapter XII of Volume IB Special Conditions of Contract regarding Suspension of Business Dealings: The abridged version of extant ‘Guidelines for suspension of business dealings with suppliers/contractors’ has now been uploaded on www.bhel.com on “supplier registration page” at the following link: http://www.bhel.com/vender_registration/pdf/Suspension-of-Business-Dealings-with-Supplier-issued-Sept13_abridged.pdf**
- 3. All Statutory Requirements as applicable for this project shall be complied with.**
- 4. Please take note of following Revised Tender Clauses:**
 - i. Notice Inviting Tender: S1 No 9
 - ii. General conditions of Contract: Clause No 1.15.13 (New), Clause No 2.8.3, 2.8.4 and 2.8.5
5. Following Notes are added to Form F- 15 of Volume I D ‘Forms & procedures’

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

6. PRICE VARIATION CLAUSE

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

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

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

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

Clause No. 2.17.5 of is modified as below:-

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

7. OVER RUN COMPENSATION

Modification in Price Variation Compensation Clause no. 2.12 of Vol I C GCC:

Clause No. 2.12 of Vol IC GCC is Revised as below:-

IF THE CONTRACT IS EXTENDED BEYOND THE CONTRACT PERIOD FOR ANY REASON OTHER THAN THOSE ATTRIBUTABLE TO THE CONTRACTOR OR FORCE MAJEURE CONDITIONS, THE CONTRACTOR WILL BE COMPENSATED BY PAYMENT OF OVERRUN CHARGES AT THE RATE OF **RS.1,00,000/- (Rupees One Lakh Only)** PER MONTH. OVERRUN COMPENSATION WILL BE PAID FOR THE EXTENSION ATTRIBUTABLE TO BHEL ONLY. NO OVERRUN COMPENSATION WILL BE PAYABLE FOR THE EXTENSION ON ACCOUNT OF REASONS ATTRIBUTABLE TO CONTRACTOR AND/OR FORCE MAJEURE CONDITIONS. OVERRUN COMPENSATION FOR ELIGIBLE PERIOD SHALL BE IN PROPORTION TO THE PROGRESS ACHIEVED AGAINST THE PLAN FOR RESPECTIVE PERIOD.

8. Acceptance of Bank Guarantee (BG)

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

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

“Bank Guarantee issued by:

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

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

9. VOID

10. 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 is given in Annexure V of NIT:

- 10.1. Against this enquiry for the subject item/ system with detailed scope of supply as per enquiry specifications, BHEL may resort to “REVERSE AUCTION PROCEDURE” i.e., ON LINE BIDDING (THROUGH A SERVICE PROVIDER). The philosophy followed for reverse auction shall be English Reverse (No ties).

-
- 10.2. BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids. In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit „online sealed bid“ in the Reverse Auction. Non-submission of „online sealed bid“ by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
- 10.3. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.
- 10.4. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit ‘online sealed bid’ in the Reverse Auction. Non-submission of ‘online sealed bid’ by the bidder for any of the eligible items for which techno-commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.
- 10.5. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.
- 10.6. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.
- 10.7. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.
- 10.8. Bidders have to fax the Compliance form (annexure IV) before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.
- 10.9. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at “Total Cost to BHEL” like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for noncompliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.
- 10.10. Reverse auction will be conducted on scheduled date & time.

- 10.11. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.
- 10.12. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, (Annexure VII) as provided on case-to-case basis to Service provider within two working days of Auction without fail.
- 10.13. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL's standard practice.
- 10.14. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service provider before reverse auction event. Bidders should acquaint themselves of the "Business Rules of Reverse Auction", which will be communicated before the Reverse Auction.

If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind,

TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC)

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4	T&Ps and MMEs to be deployed by Contractor	Chapter-IV	
5	T&Ps and MMEs to be deployed by BHEL on sharing basis	Chapter-V	
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	Annexures		
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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Contents

17	Testing, Pre-Commissioning, Commissioning	Chapter-XVII	
18	Preservation & Protection of Components	Chapter-XVIII	

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - I: Project Information

1.0	Project Information
1.1	<p>1. Purchaser / Owner : M/s GSECL</p> <p>2. Project Title : 1 X 800 MW GSECL WANAKBORI</p> <p><u>LOCATION AND APPROACH :</u></p> <p><u>PROJECT INFORMATION</u></p> <p><u>INTRODUCTION</u></p> <p>Location : Wanakbori, District-Kheda, Gujarat Nearest Railway Station : Sevaliya (8KM) – Anand-Godhra main line Nearest Airport : Vadodara (85 KM from site), Ahmadabad (100 KM from site) Nearest Sea Port : Kandla Access By Road : 10KM from Dakor-Godhra NH No. 8, 02 KM from Balasinor-Sevaliya SH No. 59 Major Towns/Cities: 13 KM from Balasinor and 10KM from sevaliya. Land: Within existing Thermal Power Station. North-East side of the existing plot. Source Of Coal: Indian coal sourced from captive mines Machha in Talchar, Orissa. Source Of Water: River Mahi, flowing by side of existing Wanakbori Power Station. Meteorological Data Dry bulb temperature (max&min.) : 40.8oC &10.8oC Humidity (min. & max.) : 42.5% to 81.5% Average Annual Rainfall : 750mm Wind speed : Basic wind speed of 39 m/sec as per IS -875(Part-3) Seismic Zone : Zone-III as per IS-1893</p>

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – II: Scope of Work

2.0 SCOPE OF WORK

- 1) The work to be carried out under the scope of these specifications is broadly as under:

COLLECTION OF MATERIALS FROM BHEL / CLIENT'S STORES / STORAGE YARD; TRANSPORTATION TO SITE, ERECTION, TESTING \ COMMISSIONING , TRIAL OPERATION AND HANDING OVER OF ESP AND ITS AUXILIARIES, INCLUDING DUCT SUPPORTING STRUCTURE, ESP OUT LET DUCT UP TO CHIMNEY, LINING & INSULATION, FINAL PAINTING ETC ATWANAKBORI GUJRAT STATE

- 2) Erection, alignment and welding, bolting, fastening, grouting as applicable of:

- ✓ Duct supporting structure, Ducts, Dampers from ESP out let to Chimney
- ✓ Handling arrangements for Rotating Machines for ID Fans.
- ✓ Electrostatic Precipitator and Stairways & Galleries

- 3) Pre-assembly, if any, Pre-erection checks as applicable
- 5) Non-Destructive Examination & post weld heat treatment.
- 6) Insulation of ESP, ESP to ID FAN Duct & ID fan to Chimney Duct.
- 7) Pre-commissioning checks/tests, Trial Runs/Testing and Commissioning
- 8) Arranging paints and Final Painting of erected items
- 9) Trial Operation and associated tests
- 10) Making unit ready for PG test and assistance for conductance.
- 11) Completion of all facilities/systems
- 12) Handing over of the unit
- 13) Providing assistance during commissioning.

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

Sl. No	Description	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.1	PART I ESTABLISHMENT			
3.1.1	FOR CONSTRUCTION PURPOSE:			
a	Open space for office (as per availability)	Yes		Location will be finalized after joint survey with owner
b	Open space for storage (as per availability)	Yes		Location will be finalized after joint survey with owner
c	Construction of bidder's office, canteen and storage building including supply of materials and other services		Yes	
d	Bidder's all office equipments, office / store / canteen consumables		Yes	
e	Canteen facilities for the bidder's staff, supervisors and engineers etc		Yes	
f	Fire fighting equipments like buckets, extinguishers etc		Yes	
g	Fencing of storage area, office, canteen etc of the bidder		Yes	
3.1.2	FOR LIVING PURPOSES OF THE BIDDER			

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

Sl. No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
a	Open space for labour colony (as per availability)	Yes		Location will be finalized after joint survey with owner
b	Labour Colony with internal roads, sanitation, complying with statutory requirements		Yes	
3.2.0	ELECTRICITY			
3.2.1	Electricity For construction purposes only of Voltage 415/440 V			FREE
a	Single point source	Yes		At a distance of 1000 M from site (Distance is only estimated, it may vary upto any extent depending on site condition)
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.2	Electricity for the office, stores, canteen etc of the bidder			Free

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

Sl. No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
a	Single point source	yes		At a distance of 1000 M from site (Distance is only estimated, it may vary upto an extent depending on site condition)
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.3	Electricity for living accommodation of the bidder's staff, engineers, supervisors etc			
a	Single point source		Yes	
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.3.0	WATER SUPPLY			
3.3.1	For construction purposes:			
a	Making the water available at single point		Yes	

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

Sl. No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.2	Water supply for bidder's office, stores, canteen etc.			
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.3	<u>Water supply for Living Purpose</u>			
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.4.0	LIGHTING			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	

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

Sl. No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	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	
3.5.0	COMMUNICATION FACILITIES FOR SITE OPERATIONS OF THE BIDDER			
a	Telephone, fax, internet, intranet, e-mail etc.		Yes	
3.6.0	COMPRESSED AIR wherever required for the work		YES	
3.7.0	Demobilization of all the above facilities		YES	
3.8.0	TRANSPORTATION			
a	For site personnel of the bidder		Yes	

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

Sl. No	Description PART I	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	For bidder's equipments and consumables (T&P, Consumables etc)		Yes	

Sl. No	Description PART II 3.9.0 ERECTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.9.1	Engineering works for construction:			
a	Providing the erection drawings for all the equipments covered under this scope	Yes		
b	Drawings for construction methods	Yes	Yes	In consultation with BHEL
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	"
d	Shipping lists etc for reference and planning the activities	Yes		"
e	Preparation of site erection schedules and other input requirements		Yes	"

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

Sl. No	Description PART II 3.9.0 ERECTION FACILITIES	Scope / to be taken care by		Remarks
		BHEL	Bidder	
f	Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments	Yes	Yes	"
g	Weekly erection schedules based on SL No. e		Yes	"
h	Daily erection / work plan based on SL No. g		Yes	"
i	Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	
j	Preparation of preassembly bay		Yes	
k	Laying of racks for gantry crane if provided by BHEL or brought by the contractor/bidder himself		Yes	
L	Arranging the materials required for preassembly		YES	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: Tentative list of T&Ps and MMEs to be deployed by Contractor

SN	DESCRIPTION	CAPACITY (MINIMUM)	MINIMUM QUANTITY PER UNIT	REMARKS
1	CRAWLER CRANE	75 MT	01 Nos.	01 No. – Up to 06 month From ESP Erection Start.
2	TYRE mounted mobile CRANE With Telescopic boom	40 MT	01 No.	01 No. – From ESP Erection Start TO trial run completion.
3	Tyre mounted mobile crane	18T/20T	02 Nos.	from Erection start to till trial run.
4	Tyre mounted mobile crane/Hydra	14/20T	02 Nos.	from Erection start to till trial run
5	TRAILER WITH PRIME MOVER	20 MT	01 NOS.	from Erection start to till trial run.
6	Oxy Acetelyne Gas cutting Machine		Adequate nos.	
7	3-PHASE DISTRIBUTION BOARD WITH COMPLETE SET UP FOR DRAWL OF CONSTRUCTION POWER	AS REQUIRED	as required	
8	POWER CABLE FOR DRAWL OF CONSTRUCTION POWER	AS REQUIRED	as required	
9	RADIOGRAPHY ARRANGEMENT WITH RADIOACTIVE ISOTOPE SOURCE	COBALT-60	as required	
10	THEODOLITE OF REQUIRED ACCURACY	To ensure verticality of str columns.	1 Nos.	
11	SELF DRILLING CUM TAPPING MACHINE FOR SCREWS OF ESP ROOF SHEETS	AS REQUIRED	4 nos. (As required)	
12	WELDING GENERATOR (ELECTRICAL)	300 AMPERE RATING	AS REQUIRED	20 NO,s since erection start
13	RADIOGRAPHY FILM VIEWER	AS REQUIRED	AS REQUIRED	
14	Chain pulley blocks of various & suitable capacities		As Required	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: Tentative list of T&Ps and MMEs to be deployed by Contractor

SN	DESCRIPTION	CAPACITY (MINIMUM)	MINIMUM QUANTITY PER UNIT	REMARKS
15	BAKING OVEN WITH THERMOSTAT AND TEMPERATURE GAUGE FOR WELDING ELECTRODES	AS REQUIRED	2 (As Required)	
16	HOLDING OVEN WITH THERMOSTAT AND TEMPERATURE GAUGE FOR WELDING ELECTRODES	AS REQUIRED	2 (As Required)	
17	PORTABLE OVEN FOR WELDING ELECTRODES	AS REQUIRED	35 (As Required)	
18	ELECTRIC WINCH	2/3/5/10/15 TON CAPACITY	As per requirement (approx 20 Nos.)	
19	HAND WINCH	0.5 TON CAPACITY	3 nos	
20	SCAFFOLDING MATERIALS WITH CLAMPS.	SUITABLE FOR WORKING AT VARIOUS HEIGHTS	6,000 Pipes with 18000 clamps.	For Alignment, welding & Insulation works
21	PORTABLE GRINDING M/C	AS REQUIRED	as required	
22	PORTABLE DRILLING M/C	AS REQUIRED	as required	
23	HOISTING AND PULLEY DEVICES/PULLEYS	Assorted capacities	as required	
24	FIRE RETARDANT TARPAULINS	AS REQUIRED	as required	
25	FIRE EXTINGUISHER	AS REQUIRED	as required	
26	Hydraulic Jacks	10/20/50/100 MT	as required	
27	Dewatering pumps		as required	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter – IV: Tentative list of T&Ps and MMEs to be deployed by Contractor

SN	DESCRIPTION	CAPACITY (MINIMUM)	MINIMUM QUANTITY PER UNIT	REMARKS
28	Spectrometer for metal testing		as required	
29	Alco meter for paint thickness checking		as required	
30	Hand Operated Megger 500 / 1000 V		as required	
31	Tong Tester 10, 20 Or 50 Amp + / - 3 % Accuracy		as required	
32	Digital and Analogue Multimetres		as required	
33	Inclined Manometer 0-50 mm Water Column		as required	
34	Calibrated Pneumatic Torque wrench		4 nos.	
35	Concrete Blocks		40 nos.	For making bed of steel structure for checking dimensional accuracy, configuration and minor rectification.
36	HUCK BOLTING MACHINE COMPLETE SET	As required	02 SET	FOR HUCK BOLTING OF SHOCK BARS AND SHOCK PADS.
37	Wooden sleeper 1.5 Mtr length	Since beginning	100 No's	For material storage at site.
38	AIR LEAK TEST EQUIPMENTS WITH ALL AUXILIARIES		01 SET	FOR AIR LEAK TEST OF ESP DUCTING ETC.

MEASURING AND MONITORING DEVICES (MMD):

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

NOTE:

- The above list specifies only major T&P/MMD (may not be complete) to be deployed by the contractor. All additional/ other tools and plants which**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – IV: Tentative list of T&Ps and MMEs to be deployed by Contractor

are required for satisfactory & timely completion of work shall also be deployed by the contractor within finally accepted rate/ price.

2. IF ABOVE MENTIONED T & P ARE NOT DEPLOYED IN SPECIFIED TIME BHEL WILL CHARGE TO CONTRACTOR CURRENT MARKET RATE + 30 % OVERHEADS FOR NON AVAILABILITY T&P OR LEVY A DAY WISE PENALTY FOR NON DEPLOYMENT OR DELAYED DEPLOYMENT
- 3 IF THE WORKS GET DELAYED DUE TO NON-AVAILABILITY OF T&P, BHEL RESERVES THE RIGHT TO GET THE WORK DONE AT THE RISK AND COST OF CONTRACTOR WITHIN PREJUDICE TO RIGHTS OF BHEL AS IN GCC.
- 4 THE MANUFACTURING YEAR OF ALL MAJOR T&PS DEPLOYED BY THE CONTRACTOR (150 MT, CRAWLER CRANE, 18 MT MOBILE CRANE AND 12/10 MT PICK & CARRY CRANE) SHOULD NOT BE MORE THAN 10 YEARS AS ON THE DATE OF DEPLOYMENT. IF AT ANY MOMENT OF TIME DURING THE EXECUTION OF WORK, ANY CRANE IS FOUND TO BE NOT IN A GOOD WORKING CONDITION AND NON-PERFORMING AT DESIRED MINIMUM CAPACITY, AS CERTIFIED BY BHEL ENGINEER, THE CONTRACTOR SHALL DEPLOY ANOTHER CRANE IN GOOD WORKING CONDITION WITH MINIMUM DESIRED CAPACITY. IF CONTRACTOR FAILS TO DEPLOY THE SAME WITH IN 10 DAYS, BHEL WILL RECOVER NON-REFUNDABLE PENALTY PER DAY OF DELAY IN THE FOLLOWING MANNER -
 1. IN RESPECT OF 90 MT CRANE: @ RS. 6,000 / -
 2. IN RESPECT OF 40 MT CRANE: @ RS. 4,000 / -
 3. IN RESPECT OF 18 MT CRANE: @ RS. 3,000 / -
 4. IN RESPECT OF 14 MT CRANE: @ RS. 2,000 / -
 5. IN RESPECT OF 12 MT CRANE: @ RS. 1,000 / -

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: T&P to be provided by BHEL Free of Hire Charges

NOTE:

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	Crawler/ tyre /tower Cranes		All cranes (except Contractor scope) required for mentioned work will be arranged by BHEL as per requirement.
2	Air Leak Test equipment with all auxiliaries.	01 SET	For leakage test of Ducts.

Note: For Crane:

Common for All:

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. Operator and O&M for hired crane will be provided by the hiring agency.
4. Contractor shall provide the fuel for BHEL provided cranes (Hired/owned) for his use.
5. 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. Contractor shall also make necessary arrangements like laying of special sleeper beds and steel pates (all arranged by contractor) for movement and operation of the crane.

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

a. TIME SCHEDULE & MOBILIZATION

6.1.1 INITIAL MOBILIZATION

After receipt of fax LOI, Contractor shall discuss with Project Manager / Construction Manager regarding initial mobilization. Contractor shall mobilize necessary resources within 2 weeks of issue of fax letter of intent or as per the directive of Project Manager / Construction Manager. Such resources shall be progressively augmented to match the schedule of milestones and commissioning.

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

The activities for erection, testing etc. shall be started as per directions of Construction Manager of BHEL. Contractor shall mobilize further resources (in addition to those required for activities under clause no. 6.1.1) as per requirement to commence the work of erection, testing etc. of ESP and auxiliaries and progressively augment the resources to match schedule of the project.

6.1.3 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 shall be recognized as “start of contract period”. Smaller items like packer plates, shims, anchors, inserts etc. will not be considered as start of contract period.

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

According to the contract between BHEL and Owner the schedule of important milestones is as follows:

SL No.	Milestones	Dates
	Zero Date	21/10/2014
1	ESP Erection Start	15/02/2016
2	Boiler Hydro Test- drainable	21/03/2017
3	Boiler Light Up (BLU) & Chemical cleaning completion	21/10/2017
5	Steam Blowing Completion & Safety Valve Floating	21/01/2018
6	Synchronization with coal firing Completion	21/04/2018
7	Full Load Operation	28/04/2018
8	Completion of trial run	31/04/2018

The above schedule is for Unit-1 x 800 MW GSECL Wanakbori.

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

6.1.4 CONTRACT PERIOD

The contract period for completion of entire work under scope shall be 26 (**Twenty six months**) from the “start of contract period” as specified earlier.

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VII: Terms of Payment

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

SL NO	Contract (Main Package) Identification ---->	ESP		INSULATION
	Rate schedule Identification ----->	ESP	NPP (ESP outlet Funnel to Chimney)	1) Castable & Pourable 2) Iron Components 3) Wool mattresses 4) Aluminium sheeting
I	PRO RATA PAYMENTS (85%)			
1.1	ON PRE-ASSEMBLY WHEREVER APPLICABLE (IF NOT APPLICABLE, THIS PORTION SHALL BE CLUBBED WITH PLACEMENT IN POSITION)	15	15	--
1.2	PLACEMENT IN POSITION	20	10	50
1.3	ALIGNMENT	15	15	15
1.4	WELDING/BOLTING/FIXING	20	30	20
1.5	COMPLETION OF NON DESTRUCTIVE EXAMINATION & STRESS RELIEVING/ HEAT TREATMENT (if not applicable, then this portion to be paid along with welding)	--	--	--
1.6	On Drum Lifting			
1.7	COMPLETION OF ATTACHMENT WELDING, FIN WELDING, SUPPORTS			
1.8	COMPLETION OF ROOF SKIN CASING			
1.9	INSTALLATION OF TEMPORARY PIPING			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VII: Terms of Payment

SL NO	Contract (Main Package) Identification ---->	ESP		INSULATION
	Rate schedule Identification ----->	ESP	NPP (ESP outlet Funnel to Chimney)	1) Castable & Pourable 2) Iron Components 3) Wool mattresses 4) Aluminium sheeting
1.10	DISMANTLING OF TEMPORARY PIPING, EDGE PREPARATION AND RETURN TO BHEL STORES, AREA CLEANING			
1.11	HANGERS & SUPPORTS ETC WHEREVER NECESSARY AS PER DRG	--	15	--
1.12	COMPLETION OF FURNACE ALIGNMENT AND FIRE BALL CHECKING			
1.13	COMPLETION OF BACK PASS ALIGNMENT			
1.14	COMPLETION OF VIBRATION SNUBBERS, MECHANICAL SPACERS, CASSETTE BAFFLES, STEAM COOLED SPACERS			
1.15	COMPLETION OF HOPPERS ALONG WITH ALL DOORS, HEATING ELEMENTS, POKING DOORS, ETC	5		--
1.16	COMPLETION OF INNER, OUTER ROOF INSULATOR HOUSING, RECTIFIER TRANSFORMERS, PENT HOUSE MONO RAILS, HOISTS ETC	5	--	--
1.17	ERECTION OF EMITTING AND COLLECTING RAPPING SYSTEM WITH ALL DRIVES	5	--	--

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VII: Terms of Payment

SL NO	Contract (Main Package) Identification ---->	ESP		INSULATION
	Rate schedule Identification ----->	ESP	NPP (ESP outlet Funnel to Chimney)	1) Castable & Pourable 2) Iron Components 3) Wool mattresses 4) Aluminium sheeting
1.18	EQUIPMENT TRIAL OPERATION			
1.19	HYDRAULIC TEST OR PNEUMATIC TEST			
1.20	FLOATING OF LINES, FINAL ADJUSTMENT OF SUPPORTS FOR COLD AND HOT VALUES (if not applicable, this portion to be clubbed along with hydraulic test/pneumatic test)			
1.21	AIR PRE HEATERS (PG 52)From the total amount payable for the PGMA weight at tonnage rates, payment will be regulated as under:			
1.21.1	Completion of Support steel squareness and levelling, Expansion arrangement, Housing panel erection and alignment, Erection, alignment and welding of pedestals			
1.21.2	Completion of Erection, alignment and welding of Support Bearing, Guide Bearing, Rotor post, Bottom and Top centre sections, Hot and cold end connecting plates			

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VII: Terms of Payment

SL NO	Contract (Main Package) Identification ---->	ESP		INSULATION
	Rate schedule Identification ----->	ESP	NPP (ESP outlet Funnel to Chimney)	1) Castable & Pourable 2) Iron Components 3) Wool mattresses 4) Aluminium sheeting
1.21.3	Completion of erection and alignment of modules			
1.21.4	Completion of erection, alignment and welding of Pin Rack assembly and Drive assembly			
1.21.5	Completion of seals setting			
1.21.6	Erection, alignment and welding of Lube oil systems, Cleaning Device, Fire sensing device, Deluge and water wash lines, Observation port and lighting assemblies and other accessories			
1.21.7	Completion of PGMA			
1.21.8	Air preheater Trial Run			
	TOTAL FOR PRO RATA PAYMENTS (TOTAL 85%)	85	85	85
II	STAGE/MILESTONE PAYMENTS (15%)			
2.1	AIR & GAS TIGHTNESS TEST	1	5	--
2.2	GAS DISTRIBUTION TEST	1	--	--

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TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VII: Terms of Payment

SL NO	Contract (Main Package) Identification ---->	ESP		INSULATION
		Rate schedule Identification ----->	ESP	NPP (ESP outlet Funnel to Chimney)
2.3	CHARGING OF ESP FIELDS	4	--	--
2.4	COMPLETION OF AIR & GAS TIGHTNESS TEST FOR FURNACE			
2.5	BOILER HYDRAULIC TEST (DRAINABLE)			
2.6	BOILER HYDRAULIC TEST (NON DRAINABLE)			
2.7	Reheater Coils Hydraulic Test			
2.8	Clean Air Flow test			
2.9	Boiler Light Up			1
2.10	ABO		1	1
2.11	Steam Blowing			1
2.12.	SVF			1

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VII: Terms of Payment

SL NO	Contract (Main Package) Identification ---->	ESP		INSULATION
	Rate schedule Identification ----->	ESP	NPP (ESP outlet Funnel to Chimney)	1) Castable & Pourable 2) Iron Components 3) Wool mattresses 4) Aluminium sheeting
2.13	Oil Flushing (TG)			
2.14	Barring Gear (TG)			
2.15	Rolling and Synchronization			
2.16	Coal Firing	2	2	1
2.17	Full Load			1
2.18	Trial Operation of Unit	1	2	2
2.19	Completion of sheet covering for Boiler roof, burner roof, lift shaft cladding, completion of gutters			
2.20	Completion of all drains and vents to respective locations and placement of instrument sensors after steam blowing			
2.21	Painting	2	1	0

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter-VII: Terms of Payment

SL NO	Contract (Main Package) Identification ---->	ESP		INSULATION
	Rate schedule Identification ----->	ESP	NPP (ESP outlet Funnel to Chimney)	1) Castable & Pourable 2) Iron Components 3) Wool mattresses 4) Aluminium sheeting
2.22	Area cleaning, temporary structures cutting/removal and return of scrap	1	1	3
2.23	Punch List points/pending points liquidation	1	1	1
2.24	Submission of 'As Built Drawings'			
2.25	Material Reconciliation	1	1	2
2.26	Completion of Contractual Obligation	1	1	1
	TOTAL FOR STAGE/MILESTONE PAYMENTS (15%)	15	15	15
	TOTAL I + II	100	100	100
	NOTE: The terms of payment is only for enabling release of payment through RABs and is not indicative of the actual quantum or value of work.			

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes and Other Duties

8.0 TAXES, DUTIES, LEVIES (Consolidated Rev 05 dated 13/08/2015)

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

8.1.1

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

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

8.1.2 Service Tax & Cess on Service Tax

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

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

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

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

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

8.1.3 VAT (Sales Tax /WCT)

As regards Value Added Tax (VAT)/CST on transfer of property in goods involved in Works Contract (previously known as Works Contract Tax) applicable as per local laws, the price quoted by the contractor shall be inclusive of the same and in no case input or output VAT/CST will be reimbursed extra.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes and Other Duties

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

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

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

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

8.2 — 'Enabling Works'

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

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

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

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VIII: Taxes and Other Duties

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

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

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

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

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

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

**TECHNICAL CONDITIONS OF CONTRACT (TCC)
CHAPTER IX SPECIFIC INCLUSIONS**

SPECIFIC INCLUSIONS

ARRANGING OF PRIMER & PAINTS ETC AS PER PAINTING SPECIFICATION MENTIONED IN ANNEXURE-II OF TECHNICAL SPECIFICATION. PAINTING SCHEME SHALL BE UPLOADED LATER

TECHNICAL CONDITIONS OF CONTRACT (TCC)

CHAPTER X 'SPECIFIC EXCLUSIONS'

10.0 EXCLUSIONS

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

- i) Sub-delivery items and electrical components such as push-buttons, junction boxes etc.
- 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 (PG 99)
- v) All electrical and control & instrumentation items except those specified elsewhere in these specifications.
- vi) Civil works except to the extent specifically indicated elsewhere in this tender.
- viii) Pneumatic copper tubing and fittings thereof.
- ix) Testing and commissioning of heating elements, thermostats, HV rectifier transformers.
- x) Electrical and C&I items of Variable Frequency Drives as provided elsewhere in these specifications.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure-I ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE
OF WORK

WEIGHT SCHEDULE :-

ESP, DUCT SUPPORTING STRUCTURES, GATES & DAMPERS
(SUMMARY)

FOR WANAKBORI 1 X 800 MW

Sl. No.	Description	Weight in MT	
		Package II	Rate Schedule
01	ESP & TRANSFORMERS	9037.95	2.1, 2.2
02	ESP NON PRESSURE PARTS	2373.26	2.3
03	INSULATION –WOOL MATTRESS	525.62	3.1
03	INSULATION- FIXING COMPONENT (ESP & DUCTING)	108.89	3.2
04	INSULATION –ALUMINIUM CLADDING	266.67	3.3
	OVERALL WEIGHT OF ABOVE (IN MT)	12312.39	

NOTE TO WEIGHT SCHEDULE:

1. The weights mentioned above are approximate and liable to vary as per design consideration. There will be change in PG, weight, description etc. However payments will be made for the tonnage actually erected at the quoted rate only.
2. The information furnished is only a description regarding the items to be erected by the contractor. BHEL reserves the right to add or exclude any components / items / systems according to the site requirements / customer requirements to complete the system in all respects.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure-I ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE
OF WORK

3. Insulation: With respect to insulation, it shall be limited to only to the application of insulation for the inner roof of ESP including fixing components.

4. The erection & dismantling of air blowers and connecting pipes and ducts providing blanks/dummies at the required locations and conducting gas tightness test is in the scope of the contract and shall be carried out within the quoted rate.

5. Any others/components which are integral to ESP & Auxiliaries supplied by BHEL Manufacturing Units are also to be erected and commissioned by the contractor within the quoted/accepted tonnage rate / Lumpsum value.

6. The Erection & Alignment of HV rectifier transformer is in the scope of the contractor. However dry out, testing and commissioning is not in the scope of this contract.

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure-I ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE
OF WORK

WEIGHT DETAIL OF ESP, NPP AND INSULATION

PGMA	PGMA DESCRIPTION	CAT	RATE IDENTIFIER	
			DGN WT (MT)	
79-901	ROLL/SLIDE SUPPORTS	ESP	31.74	2.1
79-905	ESP-SUB-DELIVERY COMPO	ESP	0.64	2.1
79-906	INSULATOR HOUSING AS	ESP	51.59	2.1
79-908	GAS DIST. ASSY	ESP	102.67	2.1
79-909	GD-RAPPING MECHANISM	ESP	18.73	2.1
79-910	GD_DRIVE ARRANGEMENT	ESP	0.92	2.1
79-911	GAS SCREEN-EP	ESP	9.02	2.1
79-913	EMIT SYST SUSPENSION	ESP	19.77	2.1
79-914	SUPPORT INSULATORS	ESP	12.96	2.1
79-915	EMITTING ELECTRODES	ESP	41.12	2.1
79-916	EMIT ELECT RAPP MECH	ESP	51.43	2.1
79-917	DRIVE ARGT. FOR EMIT.	ESP	37.01	2.1
79-919	COL ELEC SUSPENSION	ESP	198.32	2.1
79-920	COLLECTING ELECTRODE	ESP	1878.04	2.1
79-921	EMIT SYS FRAME-TOP	ESP	220.75	2.1
79-922	EMIT SYS FRAME BOTOM	ESP	219.10	2.1
79-923	INSPECTION DOORS	ESP	15.04	2.1
79-924	SHOCK BARS	ESP	155.08	2.1
79-925	COLL ELECT RAPP MECH	ESP	135.04	2.1
79-926	COLL ELEC RAPP DRIVE	ESP	8.32	2.1
79-928	ESP ROOF BEAM	ESP	294.27	2.1
79-930	ELECTRICAL SD COMPTS	ESP	18.14	2.1
79-931	GEARED MOTORS FOR RAPP	ESP	27.00	2.1
79-932	EMIT SYS FRAME-MIDLE	ESP	299.47	2.1
79-937	JUNCTION BOX & PUSH BU	ESP	2.00	2.1
79-942	OUTER ROOF-EP	ESP	373.56	2.1
79-943	HOPPER RIDGES	ESP	91.89	2.1
79-944	HOPPER UPPER PART	ESP	437.12	2.1
79-945	HOP MLD&LOWER PART	ESP	602.10	2.1
79-946	INSULATOR SUPP PANEL	ESP	156.79	2.1
79-947	ROOF PANEL ASSY	ESP	221.99	2.1
79-948	CASING STRUCTURE	ESP	483.17	2.1

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure-I ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE
OF WORK

79-949	CASING SHELL/PANEL	ESP	643.23	2.1
79-950	INLET-OUTLET FUNNEL	ESP	237.64	2.1
79-955	PENT HOUSE FOR E P	ESP	110.00	2.1
79-957	SPLITTER&GUIDE VANES	ESP	37.85	2.1
79-959	SUPPORTS FOR ELECTRICA	ESP	24.88	2.1
79-960	CABLE-CABLE RACKS	ESP	138.05	2.1
79-961	EP PERF TEST EQUIPT	ESP	5.94	2.1
79-962	CABLE TRAY AND FLEXIBL	ESP	110.50	2.1
79-963	ASH LEVEL INDICATOR	ESP	1.40	2.1
79-965	APP PLATFORM-HOPPER	ESP	151.30	2.1
79-966	WATER WASHING SYSTEM	ESP	5.95	2.1
79-972	INTERLOCKS-EP	ESP	2.00	2.1
79-973	ELECTRICALLY OPERTD HO	ESP	8.00	2.1
79-974	OPACITY MONITOR & ACCE	ESP	1.20	2.1
79-977	LT SWITCH BOARD/ESP SW	ESP	32.00	2.1
79-978	BAPCON & ACCESSORIES	ESP	0.40	2.1
79-980	FOUNDATION MATLS FOR E	ESP	19.03	2.1
79-981	SUPPOTING STRUCTURES F	ESP	666.57	2.1
79-987	FLUE GAS CONDITIONING	ESP	80.00	2.1
79-988	COMMISSIONING SPARES	ESP	0.91	2.1
79-990	HEATING ELEMENTS	ESP	4.43	2.1
79-992	AUXILIARY CONTROL PANE	ESP	32.00	2.1
79-996	TOOLS & TACKLES	ESP	0.11	2.1
JHANSI	TRANSFORMER SET	JHN- ESP	240	2.1
TOTAL WEIGHT OF PG 79			8768.17	
89-610	EP GALLERIES&STAIRS	ESP	66.54	2.2
89-611	ESP ROOF HANDRAILS	ESP	9.62	2.2
89-612	FLOOR GRILL AND STEP T	ESP	58.77	2.2
89-613	FLOOR GRILL AND MOBILE	ESP	89.24	2.2
89-614	PENT HOUSE ROOFING SHE	ESP	45.61	2.2
TOTAL WEIGHT OF PG 89			269.78	
	ESP		9037.95	
	ESP STR & NON PRESSURE PARTS			
39-012	Foundation Materials I.D.Duct Supports	ESP NPP	16.09	2.3
39-141	Columns Near Id Fan	ESP NPP	165.91	2.3
39-142	Beams And Braings Near Id Fan	ESP	478.74	2.3

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TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure-I ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE
OF WORK

		NPP		
39-150	Col Frames Betn I.D.Fan And Chimney	ESP NPP	102.78	2.3
39-300	Platforms - External Structure After Esp	ESP NPP	317.44	2.3
39-306	Fan Handling Structure For Id Fan	ESP NPP	45.75	2.3
39-700	Hsfg Fasteners For Pg 39	ESP NPP	1.73	2.3
39-810	Floor Grill	ESP NPP	98.83	2.3
39-820	Stairs	ESP NPP	27.31	2.3
39-850	Hand Rail And Hand Rail Posts	ESP NPP	29.14	2.3
39-993	Consumables And Erection Materials	ESP NPP	10.00	2.3
TOTAL WEIGHT OF PG 39			1293.72	
48-482	Duct - Esp To Id Fan	ESP NPP	350.00	2.3
48-484	Expn Jt - Esp To Id Fan	ESP NPP	26.00	2.3
48-485	Supports - Esp To Id Fan	ESP NPP	35.00	2.3
48-492	Duct - Ind Draft Fan To Chimney	ESP NPP	310.00	2.3
48-494	Expn Jt - Ind Draft Fan To Chimney	ESP NPP	22.00	2.3
48-495	I.D.System Duct Supports	ESP NPP	23.00	2.3
48-498	Duct - ,Id Fan-Chimney,Left	ESP NPP	70.00	2.3
48-912	Slide Brg Plate-Id System	ESP NPP	1.60	2.3
TOTAL WEIGHT OF PG 48			837.60	
57-470	Gate ESP Out	ESP NPP	78.50	2.3
57-480	gate ID Fan Inlet	ESP NPP	66.71	2.3
57-490	Gate ID fFan Out	ESP NPP	66.73	2.3
57-577	Electrical Actuators For Gate	ESP NPP	30.00	2.3

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TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure-I ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE
OF WORK

TOTAL WEIGHT OF PG 57			241.94	2.3
	ESP NON Pressure parts		2373.26	
ESP NON PRESSURE PARTS INSULATION				
79-967	MIN WOOL FOR ESP INSULATION	ESP INSL	325.62	2.4
79-968	FIXING COMPONENT FOR ESP	ESP INSL	83.59	2.5
89-615	INSULATION CLADDING SH	ESP INSL	186.67	2.6
32-210	Fix Comp- Duct Insuln	NPP INSL	25	2.5
32-810	Equipment Outer Casing	NPP INSL	80	2.6
32-221	Duct Mineral Wool	NPP INSL	200	2.4
33-971	Misc Eqpts Woven Wire Cloth	NPP INSL	0.3	2.5
TOTAL WEIGHT OF INSULATION			901.18	
	ESP & NPP INSULATION parts		901.18	
PACKAGE -2 ESP & NON PRESSURE PARTS TOTAL WT IN MT			12312.39	

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure-I ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE
OF WORK

Summary of Estimated Weight (in MT) of Various System in The Scope of Work

S N	Package	Trichy	BAP	Jhansi	Total
2.1	ESP		8528.17	240.00	8768.17
2.2	ESP Galleries & hand rail, Pent house		269.78		269.78
2.3	Non Pressure Parts (ESP outlet Funnel to chimney)	2131.32	241.94		2373.26
2.4	Min wool for ID Duct and ESP Ins	200.00	325.62		525.62
2.5	Fixing component for ID duct & ESP	25.30	83.59		108.89
2.6	Insulation Cladding	80.00	186.67		266.67
	TOTAL	2436.62	9635.77	240.00	12312.39

NOTES:

1. The weights given above are for one unit only.
2. Besides product groups indicated herein, there is likelihood of addition of new product groups by BHEL' s unit for release of some items, integral to this work. Tenderers' quoted unit rates shall be applicable for such product groups also

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Annexure-II PAINTING SCHEME

Painting Scheme – Details for procurement & application purposes

PAINTING SPECIFICATION ATTACHED SEPARATELY AS ANNEXURE-II AT THE END OF THIS DOCUMENT

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI General

GENERAL REQUIREMENTS – COMMON TO ALL WORK

11.1

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, equipment 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.

11.2

The terminal points decided by BHEL shall be final and binding on the Contractor for deciding the scope of work and effecting payment for the work done.

11.3

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.

11.4

The work covered under this specification is of highly sophisticated nature, requiring the best quality workmanship, supervision, engineering and construction management. The Contractor should ensure proper planning and successful & timely completion of the work to meet the overall project schedule. The Contractor must deploy adequate quantity of tools & plants, modern / latest construction aids etc. He must also deploy adequate trained, qualified and experienced supervisory staff and skilled personnel.

11.5

Contractor shall erect and commission all the equipments and auxiliaries as per the sequence & methodology prescribed by BHEL depending upon the technical requirements. Availability of materials and fronts will decide this. BHEL Engineer's decision regarding correctness of the work and method of working shall be final and binding on the Contractor. No claims for extra payment from the Contractor will be entertained on the ground of deviation from the methods / sequence adopted in erection of similar sets elsewhere.

11.6

All necessary certificates and licenses, permits & clearances required including IBR certificates/license/clearances to carry out this work from the respective statutory/ local authorities are to be arranged by the Contractor at his cost in time to ensure smooth progress of work.

11.7

The boiler shall be erected as per relevant provisions of latest Indian Boiler Regulations (IBR) and amendments/addendums thereof, if any.

11.8

The work shall conform 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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XI General

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.

11.9

The Contractor shall perform any services, tests etc, which may not be specified but nevertheless, required for the completion of work within quoted rates.

11.10

All necessary certificates and licenses required for carrying out this work are to be arranged by the Contractor expeditiously.

11.11

The Contractor shall execute the work in the most substantial and workman like manner. The stores shall be handled with care and diligence.

11.12

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.

11.13

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.

11.14

During the course of erection, testing and commissioning certain rework / modification / rectification / repair / fabrication etc may become necessary on account of feed back / revision of drawing etc. This will also include modifications / re-works suggested by BHEL / customer / other inspection group. Contractor shall carry out such rework / modification / rectification / fabrication / repair etc promptly and expeditiously. Daily log sheets signed by BHEL engineer and indicating the details of work carried out, man-hours etc shall be maintained by the Contractor for such reworks. Claim of Contractor if any, for such works will be governed by relevant clauses of 'General Conditions of Contract'.

11.15

All works such as cleaning, leveling, aligning, trial assembly, dismantling of certain equipments / components for checking and cleaning, surface preparation, fabrication of structures, tubes and pipes as per general engineering practice and as per BHEL Engineer's instructions at site, cutting, gouging, weld depositing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scrapping, lapping, fitting up etc as may be applicable in such erection works and

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which are treated incidental to the erection works and necessary to complete the work satisfactorily, shall be carried out by the Contractor as part of the work within the quoted rates.

11.16

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. ~~Only the steel for making temporary structure (cat head) for drum lifting will be provided by BHEL in random sizes materials available at site.~~

11.17

The Contractor shall take delivery of the components, equipments, chemicals, and lubricants etc from the BHEL stores/ storage area after getting the approval of BHEL Engineer on standard indent forms of BHEL. Complete and detailed account of the materials and equipments after usage shall be submitted to the BHEL and reconciled periodically.

11.18

The distance between storage area and erection site is approx 2 KM. Storage yard located at two different places and both are about 1-2 KM from Boiler area. Contractor shall plan and transport 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.

11.19

Plant materials should not be used for any temporary supports / scaffolding/ preparing pre-assembly bed etc.

11.20

The details of equipments 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.

11.21

Hangers & suspensions, supports etc for tubes, piping, & ducts etc will be supplied in running / random lengths / sizes which shall be cut to suitable sizes and adjusted as required.

11.22

Spring suspension / constant load hangers may have to be pre-assembled for required load and erection carried out as per instructions of BHEL. Adjustments, removal of temporary arrests/locks, cutting of excess thread length of hanger tie-rod etc have to be carried out as and when required. Load setting of spring hangers, as per BHEL's documents/instructions, during various stages of erection & testing and after floating of piping/ducting during cold and hot

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condition will have to be done as part of work. This exercise may have to be repeated till satisfactory results are achieved.

11.23

Layout of field routed/ small bore piping shall be done as per site requirement. Necessary sketch for routing these lines should be got approved from BHEL by the Contractor. There is a possibility of slight change in routing the above pipe lines even after completion of erection.

11.24

Welding of necessary instrumentation tapping points, thermowell, thermocouple pad, metal temp pad and clamps, root valve, condensing vessel, flow metering & measurement devices, and control valves to be provided on boiler & its auxiliaries and piping are covered within the scope of this specification. The installation of all the above items will be Contractor's responsibility even if:

- a) Items are not specifically indicated under the respective product groups as given in the technical specifications.
- b) Items are supplied by an agency other than BHEL.

Pre-heating, NDE, and Post weld heat treatment for above shall be done as per the specifications as part of work.

11.25

Certain instrumentation like pressure switches, air sets, filters, regulators, pressure gauges, junction boxes, power cylinders, dial thermometers, flow meters, valve actuators, flow indicators, centrifugal/speed switches of motors, accumulators etc are received in assembled condition as integral part of equipments. Contractor shall dismount such instruments for calibration and hand over the same to BHEL. C & I erection agency will do storage / re-erection calibration etc.

11.26

Fixing and seal welding of thermowells & plugs before Hydro test/ steam blowing of equipment or other piping system is within the scope of work. Contractor shall also remove the seal welded plugs by process of grinding and fix and seal weld thermowells after hydro test/steam blowing of lines as part of work.

11.27

Actuators/drives of valves, dampers, gates, powered vanes etc may have to be serviced, lubricated, before erection, during pre-commissioning & commissioning, including carrying out minor adjustments required as incidental to the work.

11.28

All electrical motors have to be tested for IR & PI values prior to the trial run. Where required, dry out may have to be carried out by using external heating source. Contractor shall make all arrangements in this regard and complete the work as instructed. BHEL will provide the motorized insulation testers.

11.29

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In installation of various equipments it may become necessary to install these on temporary supports/ hanger due to various reasons including non-availability of suspension materials. Contractor shall install such temporary suspensions/hangers and later on shift the relevant equipments to their respective permanent hangers/ suspensions/ supports as incidental to work. Requisite materials for such temporary arrangements will be provided by BHEL on free - returnable basis which shall be returned to BHEL after the use.

11.30

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.

11.31

All works such as cleaning, levelling, aligning, trial assembly, dismantling of certain equipments / components for checking and cleaning, surface preparation, fabrication of sheets, tubes and pipes as per the general engineering practice and as per BHEL engineers instructions at site, cutting, weld desposing, grinding, straightening, chamfering, filing, chipping, drilling, reaming, scraping, lapping, fitting up etc as may be applicable in such erection works and which are treated incidental to the erection work and necessary to complete the work satisfactorily shall be carried out by the Contractor as part of the work.

11.32

Interconnection/ hookup, if any, with the existing system shall form part of work. Such interconnections, hookups may require shut down of running plant and the relevant work have to be completed within such planned shutdowns. This may call for working with enhanced resources and on extended hours. Contractor's offer shall cover all such contingencies.

11.33

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.

11.34

It may so happen that certain components like manhole doors, hanger etc may be supplied in loose items. They need to be assembled as per relevent drawings or as per advice of BHEL engineer prior to erection. This forms the part of the scope of work.

11.35

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.

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11.36

BHEL is operating web based computerized E-store system that includes, inter-alia, issue of materials, daily progress reporting, Contractor's running monthly billing and material reconciliation through a computerized data management system. Contractor shall install necessary hardware to hook-up with the BHEL's system and use the same for his scope of work.

In the event the computerized E-store/SOMS is inoperative for any reasons, the Contractor shall take delivery of materials from the storage area/sheds of BHEL/customer after getting the approval of the engineer/customer on standard indent forms to be specified by BHEL/customer. All these records however shall be updated in the E-store/SOMS as and when the E-store/SOMS is reactivated/ normalized.

11.37

Gases like argon, oxygen, acetylene etc that are required for erection related activities shall be arranged by the Contractor at his cost. For T-91 material site weld joints argon as per grade-3 of is 5760: 1998 with oxygen and water vapour restricted to max 6 ppm each and with argon purity level of minimum 99.99% shall be arranged and used by the Contractor. The supply should accompany test certificate for the batch indicating individual element 'ppm' level and overall purity level.

11.38

Nitrogen gas, if required, for preservation of boiler and nitrogen capping during chemical cleaning process, will be provided by BHEL free of charge. Contractor shall arrange necessary connector, nipple, regulator, header and piping for usage of such gas from cylinders.

11.39

All lubricants and chemicals required for testing, preservation, chemical cleaning / acid cleaning, oil flushing, and the lubricants for trial runs of the equipments and trial operation of the unit will be supplied by BHEL free of charges.

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Chapter-XII ESP

12 DETAILS OF SCOPE OF WORK FOR ESP, AUXILIARIES & NPP

The scope of work is further detailed in the specifications hereinafter.

12.4 ERECTION OF ELECTROSTATIC PRECIPITATOR

12.4.1

Wherever called for, pre-assembly of supporting structures, casing walls, inlet outlet funnels, hoppers etc have to be done, on ground.

12.4.2

Loading of collecting electrodes either from top or bottom, to be decided suiting site conditions, shall be done with due care as per instructions.

12.4.3

Straightness of all collecting electrodes has to be checked on ground prior to loading in to the field.

12.4.4

Bundle of collecting electrodes should be handled only with special lifting beam and slings supplied for the purpose.

12.4.5

Huck bolting M/c with necessary auxiliaries is under the scope of Contractor. Electrical connections, operation etc shall also be arranged by the Contractor.

12.4.6

Clearances as prescribed amongst collecting electrodes and with casing walls have to be maintained. spot heating of collecting electrodes, wherever called for, shall be done as part of work to achieve the required clearances.

12.4.7

Erection, alignment/ fixing in final position, of high voltage rectifiers of ESP is in the scope of work. However testing & commissioning will be done by other agency.

12.4.8

Installation of high voltage interlocks (excepting rotary switch interlock of switchgear panels) is in the scope of work.

12.4.9

Complete erection, alignment, testing, pre-commissioning and commission etc for drive motors of collecting electrodes and emitting electrode rapping mechanism is in the scope of work.

12.4.10 **AIR LEAK TEST**

After erection of ESP and before clearing for insulation, air leak test has to be carried out. Necessary equipment like, air blower, ventury and instrumentation etc. will be provided by BHEL free of charges. Handling at stores, transport, erection, commissioning and carrying out the leakage test, attending to the leakages till satisfactory sealing / leak proofness shall be in scope

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Chapter-XII ESP

of the work. Contractor shall dismantle the test equipments and return to BHEL stores in good condition after due reconciliation, cleaning and servicing. No separate/ additional payment is envisaged for the above.

12.5 MAIN SUPPORTING STRUCTURES, EXTERNAL STRUCTURES, ELEVATOR STRUCTURES, STAIRWAYS, GALLERIES & PLATFORMS & HANDLING ARRANGEMENT

12.5.1

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.

12.5.2

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.

12.5.3

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.

12.5.4

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.

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.

12.5.5

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XII ESP

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.

12.5.6

All relevant provisions as above shall apply, mutatis-mutandis, to the work of external structures, interconnecting structures, elevator structures, ESP stairways and galleries & equipment handling system etc.

12.6 OTHER PRODUCTS AND SYSTEMS AND COMMON REQUIREMENTS

- a) The ducting covered under this scope of work is ~~flue gas ducting up to boiler outlet flange, boiler outlet flange to ESP, ESP to ID fans & ID Fan to chimney, hot and cold secondary air ducting from FD fans outlet to wind box, hot and cold primary air ducting from PA fans to mills including interconnections, flowmeters, dampers/gates and their drives, supports and suspensions etc for these systems.~~
- b) Ducts / expansion bellows (metallic & non-metallic) are normally supplied in loose components / segments and these are to be assembled and welded/ jointed at site before erection. The fabric portion of non-metallic expansion joints (NMEJ) namely bolster, fabric belt and canopy shall be installed by Contractor under supervision/guidence of equipment supplier/BHEL for the first few cases. Contractor shall ensure that all subsequent NMEJ are assembled with due care and proper procedure. In similar manner all joints, connecting ducts, expansion pieces and dampers shall be seal welded. These welds have to be made leak proof and tested as per technical instruction / requirement.
- c) Certain structural items like ~~silencer supports,~~ 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.
- d) Contractor has to make canopies for ~~motors, actuators, lub-oil units, control valves, etc.~~ material for this will be supplied in random lengths / sizes. No separate payment for fabrication is envisaged. Only the erection tonnage rate applicable for structure will be paid for this work.
- e) Actuator / drives of dampers, gates etc may have to be serviced, lubricated before erection, during precommissioning and commissioning, including carrying out adjustments required as incidental of the work.
- f) 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.**

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- g) Hangers and suspensions, support steels for ducts and other equipments, piping etc will be supplied in running/random lengths/ sizes, which shall be cut to suitable sizes and adjusted as required.
- h) 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.
- i) **ARRANGING PAINTS, PRIMERS ETC FOR ALL ERECTED MATERIALS UNDER SCOPE OF BOILER PACKAGE IS IN THE SCOPE OF Contractor.**

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Chapter-XIII FOUNDATIONS & GROUTINGS

13 PREPARATION OF FOUNDATIONS, AND GROUTING OF EQUIPMENT OF BOILER & AUXILIARIES

13.1

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 upto **20 mm** for achieving proper levels will be within the scope of work/specification.

13.2

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-inforcement 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.

13.3

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.

13.4

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 gp1/gp2), 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.

13.5

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.

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

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

14.1 WELDING

14.1.1

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

14.1.2

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

14.1.3

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

14.1.4

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

14.1.5

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

14.1.6

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

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Chapter-XV LINING & INSULATION

15 LINING AND INSULATION

Application of insulation, finishing, cladding and outer casing etc of the following:

1. ESP & Auxiliary.
2. ESP auxiliaries including, but not limited to, ESP, ducts, fuel-oil Equipments, fans etc

15.1

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

15.2

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

15.3

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

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

15.4

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

15.5

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

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Chapter-XV LINING & INSULATION

15.6

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

15.7

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

15.8

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

15.9

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

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

15.10

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

15.11

Wastage allowances for the material issued are envisaged as follows:

➤ a	Wool mattresses	-	2%
➤ b	Cladding sheets	-	2%

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

15.12

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XV LINING & INSULATION

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

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

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

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TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVI PAINTING

16 PAINTING

16.1

All exposed metal parts of the equipment including piping, structures, railings etc. wherever applicable, after installation unless otherwise surface protected, shall be first painted with at least one coat of suitable primer which matches the shop primer paint used, after thoroughly cleaning all such parts of all dirt, rust, scales, greases, oils and other foreign materials by wire brushing, scraping or sand blasting, and the same being inspected and approved by BHEL engineer for painting. Afterwards, the above parts shall be finished with two coats of alloyed resin machinery enamel paints.

16.2 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 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.

Tentative Painting scheme is enclosed for information at **Annexure-II** of painting specification (attached separately). However, for execution only the latest document shall be applicable and no claim whatsoever shall be entertained in case of any variance between such documents. Similarly, documents as provided progressively during the execution of work for all other products/ equipments etc shall be applicable.

The contractor may be required to fill up dents / marks by applying putty before final painting of equipment. All materials and arrangements have to be made within quoted lump sum price/rates.

16.3

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.

- (a.) 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.
- (b.) painting procedure to be followed as mentioned above for touch-up painting on damaged areas.

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Chapter-XVI PAINTING

16.4

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.

16.5

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. The Contractor at his own cost shall provide all the consumables and application implements.

16.6

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 to BHEL. BHEL will make available only the primer and paints free of any charge to Contractor.

16.7

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

16.8

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.

16.9

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.

16.10

The Contractor shall provide all the necessary scaffolding materials, temporary structures and necessary safety devices etc, during execution of the work.

16.11

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

16.12

All paints should be stored in well-ventilated store. The painters and other personnel deployed should use proper protective equipment to avoid inhalation of fumes.

16.13 PRIMER AND PAINTS FOR FINAL PAINTING

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVI PAINTING

All primer and paints (including Black Bituminous paint) required for final painting shall be in the scope of the contractor for which a separate supply order shall be placed as mentioned in price bid document.

Contractor shall arrange all paints, primers, tools and other consumables including scaffolding materials required for finish painting. Paint is to be BHEL approved make only and painting should be as per colour scheme and quality approved / specified by Engineer. Valid Test Certificate for the paint so supplied shall be made available before use of the same on work. No paint whose shelf life has expired should be used for painting.

16.14 Following additional Clauses regarding Final Painting shall be read along with Chapter XVI 'Final Painting':

- a) Agency has to do only finish coat (~~Refer Attached Ranipet painting scheme~~). Primer coat & intermediate coat is in BHEL Ranipet scope. However touch up painting will be done as per Chapter –XVI- Painting of Vol-I.
- b) **Wherever 3 coats are applicable as per Ranipet painting scheme, 2 coats of finish paint along with surface preparation (as per Chapter XVI-Painting of Vol I) is to be done before erection.** Application of 3rd coat will be done after erection completion.
- c) **Wherever 2 coats are applicable as per Ranipet painting scheme, 1st coat of finish paint along with surface preparation (as per Chapter XVI-Painting of Vol I) is to be done before erection.** Application of 2nd coat will be done after erection completion.
For components, where only one coat is applicable , **paint application will be done before erection of components.**
- d) **Wherever 3 coats are applicable**
Sr No 2.21 Chapter VII : Terms of payment- 70% payment will be done after 2 coat (1st & 2nd) of finish paint.
Sr No 2.21 Chapter VII : Terms of payment -30% payment will be done after 3rd coat of finish paint.
- e) **Wherever 2 coats are applicable**
Sr No 2.21 Chapter VII : Terms of payment- 70% payment will be done after 1st coat of finish paint.
Sr No 2.21 Chapter VII : Terms of payment -30% payment will be done after 2nd coat of finish paint.
- f) **Wherever 1 coat is applicable (Paint application will be done before erection)**
Sr No 2.21 Chapter VII : Terms of payment-70% payment will be done after painting.
Sr No 2.21 Chapter VII : Terms of payment-30% payment will be done after component erection & application of touch up paint, if surface paint damaged during erection.
- g) After completion of 1st, 2nd & 3rd coat (wherever applicable) painting application, stage inspection is to be carried out and protocol to be submitted for payment.
- h) All other terms & conditions will remain same.

Terms of Payment towards Supply of Paint :

- a) **Wherever 3 coats are applicable**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVI PAINTING

- i) 70 % Of Unit Rate (as per Price Bid) : after 2 coat (1st & 2nd) of finish paint
- ii) 30 % Of Unit Rate (as per Price Bid) : after 3rd coat of finish paint
- b) Wherever 2 coats are applicable**
 - i) 70 % Of Unit Rate (as per Price Bid) : after 1st coat of finish paint
 - ii) 30 % Of Unit Rate (as per Price Bid) : after 2nd coat of finish paint
- c) Wherever 1 coat is applicable**
 - 100 % of Unit rate : after painting
- d) Above is to be read in conjunction with terms indicated in Price bid**

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVII TESTING, PRE-COMMISSIONING, COMMISSIONING

17.1

Testing, & commissioning will involve, though not limited to these, various testing e.g., leak test, trial runs of equipments; checking/setting various clearances/ parameters, ensuring operation of various equipments free of undue restrictions, coal firing, trial operation and loading etc are some of these activities. All the activities for commissioning of the set, as informed by BHEL from time to time shall be completed.

17.2

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

17.3

Contractor shall lay / install necessary blanking arrangement in funnels, hoppers for conduct of Air leak test of ESP, ATT of ducting etc. this may involve fabrication & erection, welding & after satisfactory completion of test removal of same by cutting & grinding. Temporary installation itself has to be tested, tried, and subject to non-destructive examinations as per the instructions of BHEL as part of work.

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

17.4

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

In accounting of materials following wastage allowances are provided:

1. Structural items : 5%

- ✓ Contractor shall cut / open / dismantle work, if needed, as per BHEL Engineer's instructions during commissioning for inspection, checking and make good the works after inspection is over.
- ✓ Similarly, during the course of erection, if certain portion of equipments erected by the Contractor has to be undone for enabling other Contractors / agencies of BHEL / customer to carry out their work, Contractor shall carry out such jobs expeditiously and promptly and make good the job after completion of work by other Contractors / agencies of BHEL / customer as per BHEL engineer's / agencies of BHEL / customers instructions. Claims, if any, in this regard shall be governed as relevant clauses of 'General Conditions of Contract

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVII TESTING, PRE-COMMISSIONING, COMMISSIONING

17.5

Commissioning activities will continue till the completion of trial operation. During this period Contractor shall make available the services of separate dedicated workforce comprising of suitable skilled and semi-skilled / un-skilled workmen and supervisory staff alongwith necessary tools and plants, consumables etc.

17.6

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

17.7

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

During this period, though BHEL/ client's staff will also be associated in the work, the Contractor's responsibility will be to arrange for complete requirement of men and required tools and plants, consumables, scaffolding and approaches etc., till such time the commissioned unit is taken over.

17.8

Conducting of performance guarantee test (PG test) is in the scope of work. Contractor shall install all necessary tapping points; instruments etc and provide necessary assistance in this regard.

In case PG test is getting delayed beyond the contract period (normal plus extension if any) due to reasons not attributable to the Contractor, PG test issue will be mutually discussed and decided. However installation of necessary tapping points, impulse pipes, approaches etc are to be completed by the Contractor.

17.9

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-XVIII PRESERVATION & PROTECTION OF COMPONENTS

18.1 PRESERVATION & PROTECTION OF COMPONENTS

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.

18.2

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.

18.3

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.

18.4

The entire surplus, damaged, unused materials, packaging materials / containers, special transporting frames, gunny bags, etc shall be returned to BHEL stores by the Contractor.

18.5

The Contractor shall not waste any materials issued to him. 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.

18.6

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.