

TENDER SPECIFICATION

| SI No | Tender Specification Number | Unit Number & Project |
|-------|-----------------------------|-----------------------|
| 1 | BHE/PW/PUR/TPN-OH/1094 | 540MW, COH, Unit #3 |

FOR

COH of HP, LPT-1&2, Generator & Valves of U#3, 540MW at TAPS-Tarapur

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

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Tender Specification Issue Details

TENDER SPECIFICATION

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|-------|-----------------------------|-----------------------|
| 1 | BHE/PW/PUR/TPN-OH/1094 | 540MW, COH, Unit #3 |

FOR

COH of HP, LPT-1&2, Generator & Valves of U#3, 540MW at TAPS-Tarapur

EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR Refer Notice Inviting Tender

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

M/s.

.....

PLEASE NOTE:
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

Bharat Heavy Electricals Limited

AGM (Purchase)

Place: Nagpur

Date :

1094

NOTICE INVITING TENDER

(Document No PS:MSX:NIT:Rev 01 dated 1st
Jun 2012)

Bharat Heavy Electricals Limited



Ref: BHE/PW/PUR/TPN-OH/1094

Date: 31/01/2013

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/TPN-OH/1094 | |
| ii | Broad Scope of job | COH of HP, LPT-1&2, Generator & Valves of U#3, 540MW at TAPS-Tarapur | |
| 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 | <p>1. <u>Sale from BHEL PS WR office at NAGPUR :</u> Start: 31/01/2013: Closes: 20/02/2013, Time : 16.00 Hrs</p> <p>2. From BHEL website (www.bhel.com) Tender documents will be available for downloading from website till due date of submission</p> | Applicable/ Not applicable |
| v | DUE DATE & TIME OF OFFER SUBMISSION | Date : 21/02/2013 , Time : 15.00 Hrs Place : <u>BHEL PS Regional office at :Nagpur</u> | Applicable |

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| | | | |
|------|---|---|----------------------------|
| | | Tenders being submitted through representative shall be handed over to any of the following BHEL officials after making entry/registration at the reception: RK Ranade/ Sr. Manager (Purchase) Saravana Kumar/Engineer(Purchase) | |
| vi | OPENING OF TENDER | Date : 21/02/2013, Time : 16.00 Hrs Notes: (1) In case the due date of opening of tender becomes a non-working day, then the due date & time of offer submission and opening of tenders get extended to the next working day. (2) Bidder may depute representative to witness the opening of tender | Applicable |
| vii | EMD AMOUNT | Rs 1,00,000/- (Rs One Lakh Only) | Applicable |
| viii | COST OF TENDER | Rs 2000/- (Rs Two Thousand only) | Applicable |
| ix | LAST DATE FOR SEEKING CLARIFICATION | 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 | Applicable |
| x | SCHEDULE OF Pre Bid Discussion (PBD) | Date : | Applicable/Not applicable. |
| xi | INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM) | ----- | Applicable/Not applicable. |
| xii | Latest updates | Latest updates on the important dates, Amendments, Correspondences, Corrigenda, Clarifications, Changes, Errata, Modifications, Revisions, etc to Tender Specifications will be hosted in BHEL webpage (www.bhel.com -->Tender Notifications →View Corrigendums) and not in the newspapers . Bidders to keep themselves updated with all such information | Applicable |

- 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.

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- 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 | |
| | <p>ENVELOPE – I superscribed as : PART-I (TECHNO COMMERCIAL 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. | |
| ii. | Duly filled-in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above. Note: <ol style="list-style-type: none"> a. In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained. b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding. <ol style="list-style-type: none"> i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender | |
| iii. | Supporting documents/ annexure/ schedules/ drawing etc as required in line with Pre-Qualification criteria. It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact ph no, FAX no, etc. | |
| 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 | |

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| | | |
|-------|--|--|
| 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 | |
| | <p>ENVELOPE – II superscribed as: 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 OR 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> | |

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| CONTAINING THE FOLLOWING: | |
|---------------------------|--|
| i | <ul style="list-style-type: none">○ Envelopes I○ Envelopes II○ Envelopes III |

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

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

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

9.0 Assessment of Capacity of Bidders:

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

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

~~(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.~~

~~ii) Weightage "A" assigned to bidders based on Total number of Packages 'P':~~

- ~~a) If 'P' = 0-9, : "A" will be equal to '4'~~
- ~~b) If 'P' = 10-18, : "A" will be equal to '3'~~
- ~~c) If 'P' = 19-36, : "A" will be equal to '2'~~
- ~~d) If 'P' = 37-60, : "A" will be equal to '1'~~
- ~~e) If 'P' is above 60 : "A" will be equal to '0'~~

~~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 1))~~

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

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~~

~~=~~

~~Aggregate of months for each of the similar package for which performance should have been evaluated in all the Regions~~

~~S_T~~

~~=~~

~~T_T~~

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

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

| Sl n e | Item Description | Details for all Regions | | | | | | | Total |
|--------------|--|-------------------------|-------|-------|-------|-------|--------|-------|--|
| | | (iii) | (iv) | (v) | (vi) | (vii) | (viii) | (ix) | |
| 1 | Similar Packages for all Regions → | 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 | T_1 | T_2 | T_3 | T_4 | T_5 | ... | T_N | Sum (Σ) of columns (iii) to (ix) = T_T |

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| | | | | | | | | | |
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| | 'period of assessment for corresponding similar Package (as in row 1) | | | | | | | | |
| 3 | Monthly performance scores for the corresponding period (as in Row 2) | S _{1-1T} S _{1-2T} S _{1-3T} S _{1-4T} ... S _{1-T1} | S _{2-1T} S _{2-2T} S _{2-3T} S _{2-4T} ... S _{2-T2} | S _{3-1T} S _{3-2T} S _{3-3T} S _{3-4T} ... S _{3-T3} | S _{4-1T} S _{4-2T} S _{4-3T} S _{4-4T} ... S _{4-T4} | S _{5-1T} S _{5-2T} S _{5-3T} S _{5-4T} ... S _{5-T5} | | S _{N-1T} S _{N-2T} S _{N-3T} S _{N-4T} ... 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) Weightage "B" assigned to bidders based on Overall Performance Rating (R_{BHEL}) at Power Sector Regions for the respective Package:

- a) If R_{BHEL} is ≥ 80%, "B" will be equal to '6'
- b) If R_{BHEL} is ≥ 75% < 80%, "B" will be equal to '5'
- c) If R_{BHEL} is ≥ 70% < 75%, "B" will be equal to '4'
- d) If R_{BHEL} is ≥ 65% < 70%, "B" will be equal to '3'
- e) If R_{BHEL} is ≥ 60% < 65%, "B" will be equal to '2'
- f) If R_{BHEL} is < 60%, "B" will be equal to '0'

III. 'Assessment of Capacity of Bidder' to be Qualified for the tender:

Shall be based on the sum of the weightages obtained in 'LOAD' (A) and 'PERFORMANCE' (B) as below:

- a) If the sum (A+B) is 6 or above for each of the applicable Package, then the Bidder is considered 'Qualified' for the tender
- b) If the sum (A+B) is less than 6 for any of the applicable Package, then the Bidder is considered 'NOT Qualified' for the tender

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 |
|--|-------|-----------------|------------|

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| | | |
|---|---|---|
| <ul style="list-style-type: none"> i). Enabling works ii). Pile and Pile Caps iii). Civil Works including foundations iv). Structural Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil) | <ul style="list-style-type: none"> i). Electrical ii). CI iii). Others (Elec & CI) | <ul style="list-style-type: none"> i). Boiler & Aux (All types including CW Piping if applicable) ii). Power Cycle Piping/Critical Piping iii). LP Piping iv). ESP 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) |
|---|---|---|

e) ~~Vendors who are first timers to any BHEL Region, may be considered subject to satisfying other tender conditions. Eligibility of the party for the next tender of any package in that Region, shall be subject to the bidder satisfying the 'Assessment of Capacity of Bidder' for a period of first **nine months** after commencement of work or contract duration whatever is lesser.~~

~~In case the first timer is executing any other packages in any BHEL Region, then the performance evaluation will be based on the data available for the other packages though not similar, for the 'Period of assessment', for the purpose of 'Assessment of Capacity of Bidder'~~

d) ~~Vendors who are not first timers and who have not been executing any package or packages similar to the packages under the tender in the 'Period of assessment', shall be considered qualified subject to them satisfying all other tender conditions.~~

e) ~~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', 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.~~

f) ~~'Under execution' shall mean works in progress as per the following:~~

i. ~~upto Boiler Steam Blowing in case of Steam Generator and Auxilliaries~~

ii. ~~upto Synchronisation in case of all other works excepting sl no (i) and (iii)~~

iii. ~~upto execution of at least 75% of anticipated contract value (unit wise), in case of Enabling works or Civil & Structures.~~

~~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.~~

g) ~~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

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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

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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

for BHARAT HEAVY ELECTRICALS LTD

AGM/Purchase

Enclosure

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

PRE QUALIFYING REQUIREMENTS

| | |
|-----------|--|
| JOB | COH of HP, LPT-1&2, Generator & Valves of U#3, 540MW at TAPS-Tarapur |
| TENDER NO | BHE/PW/PUR/TPN-OH/1094 |

| 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) | NOT APPLICABLE | |
| B | <p>Technical Bidder must have executed following works i.e. Bidder must meet {(B.1.1 or B.1.2) And (B.2.1 or B.2.2 or B.2.3)} in the last seven (7) years as on latest date of bid submission:-</p> <p>B.1.1) Executed atleast One Capital Overhauling work of KWU design Turbine & Generator for 490MW or higher in Power Plant against single work order. OR</p> <p>B.1.2) Executed atleast One Erection, Testing & Commissioning Work of KWU design Turbine & Generator for 490MW or higher in Power Plant against single work order.</p> <p style="text-align: center;">AND</p> <p>B.2.1) Executed atleast One Overhauling work of KWU design Turbine & Generator in Power Plant of value not less than Rs.45 Lakhs against single work order. OR</p> <p>B.2.2) Executed atleast Two Overhauling work of KWU design Turbine & Generator in Power Plant of value not less than Rs.36 Lakhs against single work order. OR</p> <p>B.2.3) Executed atleast Three Overhauling work of KWU design Turbine & Generator in Power Plant of value not less than Rs.27 Lakhs against single work order.</p> | APPLICABLE | |

FOR QR: (B.1.1 OR B.1.2) BIDDER SHALL SUBMIT "WORK ORDER" COPY ALONG WITH RESPECTIVE "BILL OF QUANTITY & SCOPE OF WORK" INCLUDING "RELEVANT DOCUMENT FOR WORK COMPLETION CERTIFICATE WITH WORK COMPLETION DATE/MONTH " DOCUMENTS FOR THE RESPECTIVE WORK ORDER IN SUPPORT OF

| THE TECHNICAL QR. | | | |
|--|---|----------------|---------|
| <p>FOR QR: (B.2.1 OR B.2.2 OR B.2.3) BIDDER SHALL SUBMIT “WORK ORDER” COPY ALONG WITH RESPECTIVE “BILL OF QUANTITY & SCOPE OF WORK” INCLUDING “RELEVANT DOCUMENT FOR WORK COMPLETION CERTIFICATE WITH WORK COMPLETION DATE/MONTH” & “RELEVANT DOCUMENT FOR WORK EXECUTED VALUE” DOCUMENTS FOR THE RESPECTIVE WORK ORDER IN SUPPORT OF THE TECHNICAL QR.</p> <p>IN ABSENCE OF ABOVE SAID DOCUMENTS, OFFER OF THE BIDDER WILL NOT BE CONSIDERED FOR EVALUATION.</p> | | | |
| C-1 | <p><u>Financial Turnover</u> Bidders must have achieved an average annual financial turnover (Audited) of Rs.27 Lakhs or more over last three Financial Years (FY) i.e. 2009-2010, 2010-2011, 2011-12</p> | APPLICABLE | |
| C-2 | <p><u>NETWORTH</u> (only in case of Companies) Net worth of the Bidder based on the latest Audited Accounts as furnished for ‘C-1’ above should be positive</p> | APPLICABLE | |
| C-3 | <p><u>PROFIT</u> Bidder must have earned cash profit in any one of the three Financial Years as applicable in the last three Financial Years defined in ‘C-1’ above based on latest Audited Accounts.</p> | APPLICABLE | |
| D | Assessment of Capacity of Bidder to execute the work as per sl no 9 of NIT | NOT APPLICABLE | By BHEL |
| E | Approval of Customer | 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 | Consortium criteria | 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 c. Three (3) works of not less than Rs ZZZ (Value XXX, YYY, ZZZ shall be as indicated by BHEL | | | |

| | |
|--|---|
| | <p>2. ‘Similar’ work for criteria 5 above means</p> <ul style="list-style-type: none">a. Civil or Structures or Civil & Structures or Chimney respectively as applicable to the tendered scope in respect of ‘CIVIL’ Worksb. Electrical works in respect of ‘ELECTRICAL’c. CI works in respect of ‘CI’ Worksd. Material Handling and/or Management works in respect of ‘MM’ works <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</p> <p>8. Unless otherwise specified, for the purpose of ‘Technical’ criteria of PQR (as in ‘B’ above), the word ‘EXECUTED’ means:</p> <ul style="list-style-type: none">1. “BOILER LIGHT UP” in respect of Boiler & Aux and ESP2. “SYNCHRONISATION” in respect of STG/GTG and ‘SPINNING’ in case of HTG3. “STEAM BLOWING COMPLETION” in respect of at least Main Steam Line of Power Cycle Piping4. “HYDRAULIC TEST” of the system in respect of Structures, Pressure parts/IBR Piping5. “CHARGING” in respect of power Transformers, Bus ducts, HT/LT switchgears6. “Completion of RCC Shell and liner (steel or brick as per tendered scope) up to the HEIGHT specified using slip form” in case of RCC Chimney.7. Achievement of physical Quantities as per respective PQRs in respect of Civil & Structures and Piling Works8. ‘Readiness for coal Filling’ in respect of Bunker Structure Work. <p>9. Boiler means HRSG or WHRB or any other types of Steam Generator</p> <p>10. Critical/Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass, LP Bypass lines</p> <p>11. 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.</p> <p>12. In case the experience/POAWO certificate enclosed by bidders do not have separate break up prices for the E&C portion of Electrical and CI Works, (i.e. the certificates enclosed are for composite order for supply and erection of Electrical & CI and other works if any), then value of Erection and Commissioning for the Electrical & CI portion shall be considered as 15% of the supply & erection of Electrical & CI, unless otherwise specifically indicated in the PQR.</p> <p>13. Scope for capital overhaul of STG shall cover Bearing Inspection work and overhauling of all cylinders of the Turbine unless otherwise specifically indicated in the PQR.</p> <p>14. 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> |
|--|---|

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.a | Details of Contact person for this Tender | Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No: | |
| 3.b | Details of alternate Contact person for this Tender | Name : Mr/Ms Designation: Telephone No: Mobile No: Email ID: Fax No: | |
| 4 | EMD DETAILS | DD No: Date : Bank : Amount: Please tick (✓) whichever applicable:- ONE TIME EMD / ONLY FOR THIS TENDER | |
| 5 | Validity of Offer | TO BE VALID FOR SIX MONTHS FROM DUE DATE | |
| | | APPLICABILITY (BY BHEL) | ENCLOSED BY BIDDER |
| 6 | Whether the format for compliance with PRE QUALIFICATION CRITERIA (ANNEXURE-I) is understood and filled with proper supporting documents referenced in the specified format | Applicable | YES / NO |
| 7 | Audited profit and Loss Account for the last three years | Applicable | YES/NO |
| 8 | Copy of PAN Card | Applicable | YES/NO |
| 9 | Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed | Applicable | YES/NO |
| 10 | Integrity Pact | NOT Applicable | YES/NO |
| 11 | Declaration by Authorised Signatory | Applicable | YES/NO |
| 12 | No Deviation Certificate | Applicable | YES/NO |
| 13 | Declaration confirming knowledge about Site Conditions | Applicable | YES/NO |
| 14 | Declaration for relation in BHEL | Applicable | YES/NO |
| 15 | Non Disclosure Certificate | Applicable | YES/NO |
| 16 | Bank Account Details for E-Payment | Applicable | YES/NO |

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| | | | |
|----|---|--------------------|--------|
| 17 | Capacity Evaluation of Bidder for current Tender | NOT Applicable/ | YES/NO |
| 18 | Tie Ups/Consortium Agreement are submitted as per format | NOT Applicable | YES/NO |
| 19 | Power of Attorney for Submission of Tender/Signing Contract Agreement | Applicable | YES/NO |
| 20 | Analysis of Unit rates | Applicable | YES/NO |

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

DATE :

AUTHORISED SIGNATORY
(With Name, Designation and Company seal)

ANNEXURE 4: **IMPORTANT INFORMATION**

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. **This is a tender for COH of HP, LPT-1&2, Generator & Valves of U#3, 540MW at TAPS-Tarapur.**

1094

TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



TECHNICAL CONDITIONS OF CONTRACT (TCC) CONTENTS

| SI No | DESCRIPTION | Chapter | No. OF PAGES |
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| Volume-IA | Part-I: Contract specific details | | |
| 1 | Project Information | Chapter-I | 1 |
| 2 | Scope of Works | Chapter-II | 7 |
| 3 | Special Terms and Other Conditions | Chapter-III | 7 |
| 4 | T&Ps and MMEs to be deployed by Contractor | Chapter-IV | 3 |
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| 8 | Taxes and other Duties | Chapter-VIII | 3 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)
Chapter - I : PROJECT INFORMATION

| 1.0 | Project Information |
|------------|---|
| | <p>1) Purchaser : M/s Tarapur Atomic Power Corporation (TAPS)</p> <p>2) Project Title : 540 MW COH, U#3, TAPS Tarapur</p> |

The Bidder shall visit site and get acquainted himself with the conditions prevailing at site before submission of the bid. The information given here in under are for general guidance and shall not be contractually binding on BHEL/ Owner. All relevant site data/information as may be necessary shall have to be obtained /collected by the Bidder.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - II : SCOPE OF WORK

2.0 The work under the scope of these specifications is broadly as follows.

PRE SHUTDOWN WORK

1. Mobilization of site.
2. Arranging Gate pass (Police verification certificate is required for getting Gate Pass from NPCIL/Tarapur, hence the action should take well in advance ie before shutdown of unit)
3. Accommodations to the contract personnel.
4. Shifting of material store and T&Ps.
5. Shifting of special T&Ps to turbine floor.

SCOPE OF WORK:

2.1 General OH:

1. Stopping of barring gear and oil pumps.
2. Removal of pedestal covers and dismantling of yokes and record relevant clearances.
3. Record all coupled run out.
4. Decoupling of all coupling and record as found alignment reading. Measure and record the elongation of coupling bolts while loosening (as found) and tightening(as left)
5. Record as found swing check of rotor both end.
6. Drain main oil tank, separate impurities and inspect main oil tank, Main oil tank basket strainers cleaning.
7. Checking and setting of pipe supports/hangers.
8. Overhauls of main oil pump, checking and inspection of bearings, seal rings, shaft, impeller etc.
9. Final alignment of coupling of rotors.
10. Carry out checks on bearings 1-4 surfaces and babitt on bearing. Perform bearing DPT and UT on bearing surface. Check bearing clearances. Check seating of bearing on bearing support. Check labyrinth rings and, if required, replace seal strips.
11. Removal of pedestal oil guards strips clearances and repaired if required and restores design value.
12. Revisioning of barring gear nozzles.
13. Perform revers assembly activities.
14. Oil flushing and throttle normalization.
15. Machine put on barring gear

2.2 HP TURBINE OVERHAUL:

1. Removal of complete insulation of HP turbine and disposal of insulation at the place designated by NPCIL. cleaning of the traces of insulation from the HPT casing
2. Dismantling of associated and required piping.
3. Traces of the leak were checked at the parting plane and extraction and inlet piping flanged joints and L-ring joint with the casing. Inspection for scale and freedom of movement at L-seal rings. Inspect U-seal ring and Measurement and record of the clearances.
4. HPT outer casing parting plane joint filler proof ness checking.
5. Measurement of the coupled run out at all couplings. Measurement and record of the as found readings of the alignment at all couplings.
6. Checking of axial and radial clearance in the assembled condition after noting down control dimensions.
7. Loosening of outer casing parting plane bolts by induction heating and removal of the top half casing.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - II : SCOPE OF WORK

8. Roll check, Bump check and float check of HP rotor with respect to inner casing after centering the casing. Horn drop checking of HP module.
9. Loosening of inner casing parting plane bolts by induction heating and removal of top half casing.
10. Inspection of inner and outer casing joint plane for erosion.
11. Measurement of flow path clearances, and necessary replacement / repair of fins rotor and casing as per requirement.
12. Measurement of parting plane stud lengths, testing and replacement as per requirement.
13. Removal of rotor. Inspection of the rotor for cracks in fillets. Perform the measurement and record of run out check. Polish scoring on the journals.
14. Clean entire blading with casing open and inspect for damage and incipient cracks. Checking of shrouds for scale. Check for blade looseness and lock blade lift.
15. Removal of gland box seals on the both sides, checking of axial and radial clearance and repair / replacement / of any components of gland boxes, as per requirement. Check for abrasion and scale. Checking of condition of springs.
16. Facial run-out checks on HP coupling halves and LP coupling halves and necessary scraping / matching required for attaining the coupled run out/swing within acceptable limits.
17. Inner casing guides inspection for freedom of movement and wear. Checking of casing drains for foreign material.
18. Drain main oil tank, separate impurities and inspect main oil tank. Main oil tank basket strainers cleaning
19. Checking and setting of pipe supports/hangers
20. Overhaul of main oil pump, checking and inspection of bearings, seal rings, shaft, impeller etc.
21. Aluminum silicate blasting of rotor
22. Inspection of inner and outer casings for the crack. Measurement of inner and outer casing ovality check. Removal of inner bottom casing if required. Inspection of seal strips of the inner casing and repair/replacement of fins as per requirement. Cleaning outer casing, inspection of seal strips of the outer casings and repair/replacement of fins as per requirement
23. Placement of rotor in the ZERO position in the inner casing and necessary grinding / machining of casing and rotor fins etc. and adjustment in keys, packers etc. as per requirement during checking of axial / radial clearances of blades / fine.
24. Placement of top half of inner casing/outer casing(without rotor) on bottom half for checking ovality of the casing after tightening of the parting plane studs. Removal of casing top half after checking the ovality of the casing
25. Final box- up of inner casing after thorough cleaning, checking for minimum axial and radial clearances by rolling checks, bump check, horn drop check of inner casing and necessary rectification as per requirement. Measurement and record of the as left clearances and dimensions
26. Checking for axial and radial clearances of seal strips of sealing segments of the outer casing (both top and bottom half) and necessary adjustment / grinding as per requirement and boxing up of gland boxes. Measurement and record of the as left clearances and dimensions
27. Placing of top half of HP outer casing on the bottom half after cleaning and boxing-up of the outer casing.
28. Checking for minimum axial/radial clearances by roll check, bump check, horn drop check of outer casing and necessary rectification as per requirement. HP rotor swing checks after the final alignment checks and coupling bolt tightening
29. Final checking of axial/radial clearances in the assembled condition and necessary rectification as per requirement.
30. Final connection of associated piping etc.
31. Removal and replacement of HPT thermocouples and putting new ones.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - II : SCOPE OF WORK

2.3 LP TURBINE OVERHAUL (LP1 & LP2)

- 1.0 Removal of LP Turbine outer casing parting plane bolts and removal of outer casing.
- 2.0 Erection of LP parting plane Joint covering, Fabrication of Grill/chequered plates as per requirement.
- 3.0 Carry out Roll check of LP turbine and record as found reading..
- 4.0 Jacking of LP Inner & outer casing bottom half. Removal of LP Turbine Inner outer casing parting plane bolts & eccentric bolt. Removal of Inner outer casing.
- 5.0 Removal of LP Turbine Inner-Inner casing parting plane bolts with induction heating. Removal of Inner-Inner bottom half casing if required (Bellows cutting and welding shall extra time and cost)
- 6.0 Checking of flow path clearance of LP turbine (both axial & radial) etc. Measure and record the as found values
- 7.0 Removal of front & rear gland box top half. Removal of gland segments. Repair & replacements of gland fins etc.
- 8.0 Removal of LP rotor & placing on the stand.
- 9.0 Dry alumina blasting of LP rotor and casings. Arranging dry Alumina and necessary blasting equipment shall be in the scope of the contractor.
- 10.0 Cleaning of rotor, Inner-Outer casing, Inner-Inner casing and all other components as per requirement.
- 11.0 Inner-inner casing and inner-outer casing guides inspection for freedom of movement and wear. Check casing drains for foreign material
- 12.0 Inspection of inner and outer casing for the cracks. Measurement of the inner-inner casing ovality check. Inspection of seal strips of the inner-inner and inner-outer casings and repair/replacement of fins as per requirement
- 13.0 Checking of complete blading assembly and examine for damage and scaling of seal strips in any
- 14.0 De-blading/Re-blading of free standing blades for MPI of LPT rotor
- 15.0 Assistance in check free standing LP moving blades for cracks (ie MPI of free standing blades) and Natural Frequency Test and cleaning of blade root and groove.
- 16.0 Visual inspection & DPT of all LP extraction bellows/LP turbine front & rear bellows and carry out necessary repair/replacement as per requirement
- 17.0 Replacement of one extraction bellow shall be done by contractor. Further replacement if required shall be done on extra time & cost
- 18.0 Carry out necessary visual inspection of condenser dome wall stiffening structure & spray trays etc inside condenser and carry out minor repair as per requirement
- 19.0 Placement of LP rotor on inner casing and box up of inner-inner & inner-outer casing by heat tightening by induction heating as per requirement
- 20.0 Carry out roll check of LP turbine & necessary correction in keys, packers & eccentric bolts etc as per requirement. Measure and record the as left values
- 21.0 Checking of radial/axial clearances of LPT and setting as per drawing and manufacturers recommendations. Measure and record the as left values
- 22.0 Replace parting plane "O" ring and box up of LP turbine outer casing
- 23.0 Placement/fitment of LP front & rear gland box top half and carrying out necessary adjustments
- 24.0 Carry out checks on Bearing-1 to 4 surfaces and babbitt on bearings. Perform bearing DPT and UT on bearing surface. Check bearing clearances. Check seating of bearing on bearing support. Check labyrinth rings and if required, replace seal strips. Check condition and performance of bearing temperature monitoring system.

2.4 CHECKS ON COUPLINGS:

- 1.0 Disconnect couplings.
- 2.0 Measure the elongation of coupling bolts while loosening (as found).

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - II : SCOPE OF WORK

- 3.0 Check for cracks. If found, perform Run out check, UT / MPI of coupling bolts.
- 4.0 Polishing score-marks in shaft journals and coupling faces.
- 5.0 Check the alignment radially and axially.
- 6.0 Carry out the Swing check & Coupled Run out check.
- 7.0 Perform the clearance check between bolts and holes.
- 8.0 Realign the same if the deviations exceed the permissible tolerance.

2.5 MAJOR OVERHAULING OF GENERATOR

a. General

- 1.0 Dismantling and removal of exciter components. Main exciter outer and inner hood removal from position ensured electrical and CMU clearance. All wall plates removal from position. Diode cover bolts removal of top half from position. Removal of PMG and pilot exciter and Exciter rotor decoupling and removal.
- 2.0 Hydrogen & exciter coolers removal including the associated piping.
- 3.0 Removals of end shield top halves of both ends, lowering of the end shield at both ends and rotor thread out.
- 4.0 Assembly of turbo-generator after all checks are carried out and defects are rectified.

b. CHECKS ON STATOR:

- 1.0 Assistance in measure insulation resistance of stator winding
- 2.0 Stator winding insulation
- 3.0 Dismantle stator end shield and replace gaskets
- 4.0 Check condition of stator core
- 5.0 Check slot wedging system & end winding support structure
- 6.0 Check coil connections (Preloading, voltage drop)
- 7.0 Replace all generator flange gaskets
- 8.0 Check Teflon expansion joints along with the Teflon hoses of primary water system.
- 9.0 Check filters in primary water circuit
- 10.0 Leakage test of primary water system. Stator hydro test.
- 11.0 Leakage test of H₂ system
- 12.0 Assistance during ELCID test.
- 13.0 Cleaning of conical strainers of primary water system.
- 14.0 Assistance for carrying electrical test.

c. CHECKS ON ROTOR:

- 1.0 Checks on TE and EE coupling faces for the axial run out and distortion and damage and coupling bolt holes checking.
- 2.0 Perform coupled run out check
- 3.0 Rotor bearing journal area checking for dimension.
- 4.0 Inner oil catcher radial clearances checking. Sealing strips replacement with new one and machining.
- 5.0 Checking of shaft seal assemblies & rotor area where shaft seal seats. Check shaft seal insulation
- 6.0 Sliding contact faces of seal rings & seal carriers checking
- 7.0 Check earthing brush contact surface of shaft.
- 8.0 Seal ring clearance checking
- 9.0 Perform generator rotor gas tightness test at 6.0 kg/cm² and assistance to attend it.
- 10.0 Withdraw and check rotor & compressor blades & carry out the inspection
- 11.0 Perform ultrasonic testing of rotor retaining rings
- 12.0 Check rotor wedges and retaining rings
- 13.0 Check end windings and gas outer ducts
- 14.0 Assistance in measurement of insulation resistance of rotor winding and RSO test.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - II : SCOPE OF WORK

- 15.0 Check bearing surfaces
- 16.0 Check rotor fan
- 17.0 Check coupling flanges
- 18.0 Check rotor alignment

d. COOLERS

General:

- 1.0 Check cooling water inlet and outlet pipes, vent pipes and drain pipes and mounting all coolers

H2 Cooler:

- 1.0 Clean H2 cooler on water side as well as H2 side and hydro test.
- 2.0 Check condition and, if required, recondition H2 cooler water channels.
- 3.0 Replace required gaskets.

Seal Oil Cooler:

- 1.0 Clean seal oil coolers on waterside as well as oil side and hydro test.
- 2.0 Check condition and, if required, recondition Seal oil cooler water channels.
- 3.0 Replace required gaskets.

Primary Water Cooler:

- 1.0 Cleaning of seal oil cooler on ACW side as well as from the stator water side
- 2.0 Checking of condition, if required recondition stator water cooler water channels
- 3.0 Replacement of the gaskets and other electrometric components
- 4.0 Carry out the pressure test on the stator water coolers and take corrective action if required

Turbine Oil Coolers:

- 1.0 Cleaning of Lub oil cooler on waterside as well as from the lub oil side
- 2.0 Checking of condition, if required recondition lub oil cooler water channels
- 3.0 Replacement of the gaskets and other electrometric components
- 4.0 Carry out the pressure test on Lub oil coolers and take corrective action if required

Exciter Cooler:

- 1.0 Cleaning of Exciter air oil cooler on waterside as well as from the air side
- 2.0 Checking of condition, if required recondition Exciter air cooler water channels
- 3.0 Replacement of the gaskets and other electrometric components
- 4.0 Carry out the pressure test on Exciter air coolers and take corrective action if required

e. Bearings (Bearing 5, 6 & 7)

- 1.0 Check and if required, replace bearing insulation
- 2.0 Check bearing surfaces and babbitt on bearing
- 3.0 Perform bearing DPT and UT on bearing surface
- 4.0 Check bearing clearances
- 5.0 Check seating of bearing sleeves on bearing saddles
- 6.0 Check labyrinth rings and if required, replace seal strips
- 7.0 Check condition and performance of bearing temperature-monitoring system
- 8.0 Check condition and performance of shaft lift oil system

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - II : SCOPE OF WORK

f. Shaft Seals

- 1.0 Check shaft seal insulation
- 2.0 Replace shaft leak insulation and gaskets
- 3.0 Check sliding contact faces of seal rings and seal ring carriers
- 4.0 Check contact faces of seal rings
- 5.0 Check seal ring clearances
- 6.0 Check inner labyrinth rings and ,if required, replace seal strips

g. Seal Oil System:

- 1.0 Check CV and Safety Valves including float valves, DPRVs, PECVs.
- 2.0 Replace control valve bellows if required
- 3.0 Check and replace all valves for flange/gland leaks
- 4.0 Clean all seal oil filters and replace gaskets

h. Excitation systems

- 1.0 Check radial bolts for H2 leakage
- 2.0 Dismantle exciter
- 3.0 Check insulation resistances of windings
- 4.0 Check condition & performance of rectifier wheels; check stator & rotor windings
- 5.0 Check coupling flange
- 6.0 Check contact pin & multi contact strip and, if required ,replace
- 7.0 Check alignment
- 8.0 Check bearing and pipe insulation
- 9.0 Check bearing surfaces and Babbitt bonding
- 10.0 Check bearing clearances
- 11.0 Check seating of spherical portions of bearings
- 12.0 Check labyrinth rings and, if required, replace seal strips
- 13.0 Check air filter
- 14.0 Clean pre-filter for exciter dryer and replace if required.

2.6 OVERHAUL OF MAIN STEAM STRAINERS.

- 1.0 Cutting of drain pipe.
- 2.0 Removal of strainer, repair/ replacement as per requirement.
- 3.0 Inspection, cleaning & DPT of components.
- 4.0 Assembly of strainer and welding of drain pipes.

2.7 OVERHAULING OF THE FOLLOWING VALVES:

- 1.0 Condenser Steam Dump valve dismantling, inspection, maintenance, assembly & calibration
– 04 Nos.
- 2.0 Condenser Steam Dump valve servo motor dismantling, inspection, maintenance, assembly & calibration
– 04 Nos.
- 3.0 CSDV Stop valve dismantling, inspection, maintenance, assembly & calibration
– 04 Nos.
- 4.0 CSDV Stop valve servo motor dismantling, inspection, maintenance, assembly & calibration
– 04 Nos.
- 5.0 Emergency Stop valve dismantling, inspection, maintenance, assembly & calibration
– 02 Nos.
- 6.0 Emergency Stop valve servo motor dismantling, inspection, maintenance, assembly & calibration
– 02 Nos

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter - II : SCOPE OF WORK

- 7.0 Emergency Control valve dismantling, inspection, maintenance, assembly & calibration
– 02 Nos.
- 8.0 Emergency Control valve servo motor dismantling, inspection, maintenance, assembly & calibration
– 02 Nos.
- 9.0 CSDV water injection valve dismantling, inspection, maintenance, assembly & calibration
– 04 Nos.
- 10.0 LP Bypass valve dismantling, inspection, maintenance, assembly & calibration
– 04 Nos.
11. Calibration of ESCVs, CSDVs and governing rack components.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND OTHER CONDITIONS

3.1 SPECIAL TERMS AND CONDITIONS:

- 1.0. Subcontractor should assure that the repair of the equipment covered in the scope of this offer will be conducted with the best of skills and know how available with Subcontractor and in conformance with the clearances and adjustments set forth in manufacture's drawing instruments and other information's furnished to Subcontractor.
- 2.0. The various setting, clearances, adjustments and benchmarks will be restored to the extent possible during rectification to the condition as per the erection and commissioning log sheets available with customer. If however we are not able to produce erection / commissioning log sheets, efforts will be made to attend the best possible parameter or the conditions as observed at the time of dismantling of the equipment in consultation with us.
- 3.0. Subcontractor must prepare PERT CHART/BAR CHART. Daily monitoring will be done jointly and log sheets of important activities should be noted down and signed jointly.
- 4.0. All the works shall be carried out as per the instructions and to the satisfaction of the Engineer In-charge.
- 5.0. The contractor will attend contributory to faulty and poor workmanship during commissioning and trial run of the equipment.
- 6.0. Round the clock working under expert supervision shall be ensured by the contractor deploying two equal parallel strength of groups in 12 hrs Shift with equal T&P for all the jobs so as to complete the work in stipulated period or earlier.
- 7.0. Adequate manpower along with T&P should be deployed at site. All the T&P required for the work shall be arranged by the contractor and all T&P should reach the site 3 days before the shutdown of the unit. All the measuring instruments shall be duly tested / calibrated and valid certificate to that effect should be submitted to our Site In-charge before start of the work.
- 8.0. A deployment plan along with experience and name of the Site In-charge, Engineers, Supervisors, Foreman and main technicians to be submitted on per shift basis.
- 9.0. LAP-TOP with latest configuration, DVD/CD writer, its peripherals including printer-scanner and one USB Modem for Internet connectivity to be provided for BHEL site office.
- 10.0. Two office boys in each shift are to be provided for BHEL site office.
- 11.0. Experienced Engineers for preferably ex-BHEL employees with more than 25 years' experience in erection/ servicing of Turbine & Generator area to be engaged during entire overhauling period in consultation with BHEL.
- 12.0. It is the responsibility of contractor to keep the plant, equipment, machinery and surrounding area clean.
- 13.0. The names of working persons like Site in-charge, supervisors, foreman, main fitters to be deployed during the job with full details has to be submitted stating their area of work and experience and specialization of the work to site in-charge before the start of work. BHEL may

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND OTHER CONDITIONS

- ask to change/delete the person not found suitable for the work at any point of time during execution of job. For any addition and deletion of the working person prior permission from BHEL shall be taken.
- 14.0. Subcontractor has to ensure that all the key persons must continue till completion of job i.e. machine comes on load. Subcontractor manpower should remain at site for a period of **3 days** after machine comes on full load.
 - 15.0. Work distribution sheet for all the workers/supervisors deployed shall be submitted to BHEL one day in advance on daily basis.
 - 16.0. Subcontractor should mobilize additional resources such as plant, equipments, material as may be required by site in-charge to improve the progress of the work if the progress of the work is not satisfactory.
 - 17.0. Subcontractor should get registered under relevant sales tax and or work contract Act (VAT) where the jobs are executed.
 - 18.0. Radiography and stress relieving, wherever mentioned are in the scope of the contractor.
 - 19.0. Scrap and insulation etc. is to be shifted to scrap disposal area as indicated by the Engineer-in-charge.
 - 20.0. One administrative personnel to control the resources and attendance of the workers to be ensured.
 - 21.0. Contractor shall arrange certified HP welder for welding job whose welding test will be conducted.
 - 22.0. Argon, Oxy- Acetelene gas shall be arranged by the contractor with cutting/welding set / argon welding set and other welding appliances.
 - 23.0. Enerpack make close height Hydraulic jacks of 50T and 100T capacity - 4 nos. each shall be arranged by the contractor in 100 % working conditions.
 - 24.0. If the duration of work continues beyond stipulated period due to any reason, no claim for compensation will be entertained.
 - 25.0. The work details are brief & for Subcontractor knowledge only. Subcontractor will have to do all the related works as per requirement.
 - 26.0. The contractor will be responsible to pay the damages to the property of Board or individual caused by his worker during the course of contract. If the contractor fails to pay the same it will be recovered from his bill.
 - 27.0. No compensation claimed for idle labor for any reason will be entertained by BHEL.
 - 28.0. In normal course, the interpretation of the under signed on any matter or decision given by him on any disputable points will be final and binding on the contractor.
 - 29.0. Accommodation for the sub-contractor's manpower will be provided if made available by the customer as per the applicable charges.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND OTHER CONDITIONS

- 30.0. Contractor is to obtain labor license before the start of the work.
- 31.0. Workmen compensation policy to taken before the start of the work
- 32.0. Third party liability insurance to taken before the start of the work
- 33.0. The copy of registration of sales tax/Excise Duty/VAT. If this is not applicable then contractor shall submit an undertaking
- 34.0. Copy of registration of EPF along with the PF account number of the employees. Challans for EPF for previous month shall be submitted along with subsequent RA bill
- 35.0. Partnership deed of firm in case of partnership firm or power of attorney of the representative in case of company to be submitted before the start of the work
- 36.0. Bank details, address & RTGS numbers etc to be submitted
- 37.0. Copy of service tax registration to be submitted before the start of the work
- 38.0. Copy of professional tax registration to be submitted before the start of the work (If required)
- 39.0. Copy of PAN card in the name of firm to be submitted before the start of the work
- 40.0. Copy of wage register witnessed by NPCIL representative for the bill period & bank transfer details to be submitted
- 41.0. The contractor has to take clearance from HR group of TMS/NPCIL before release of final bill
- 42.0. The contractor has take NO OBJECTION CERTIFICATE (NOC) from Safet section, stores, health physics section, HR/HS section & security section of NPCIL/Tarapur before release of final bill.
- 43.0. Calibration certificate with validity for all measuring instruments and T&P should be submitted to NPCIL before start of work.
- 44.0. Contractor has to arrange 6 copies of overhauling reports which will include various protocols with necessary data/ MOMs / important correspondences / log sheets etc. and the book shall be spiral bound with thick acetate papers in front and back along with BHEL logo printed suitably on thick art paper at the front.
- 45.0. Contractor has to carry out tree plantation in customer premises

3.2. LAISION WITH ALL STATUTORY AUTHORITIES :

- a) Compliance of statutory provisions, whether mentioned in this contract or not shall be binding on the contractor.

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Chapter – III: SPECIAL TERMS AND OTHER CONDITIONS

- b) If there is any change in labour laws after the contract has been awarded, then the new law shall automatically be binding on the contractor.
- c) No additional financial compensation shall be paid by BHEL to the contractor on account of increased expenditure caused by a) and b) above.
- d) Liaisoning with local commercial tax dept. to obtain Coml. Tax exemption certificate.

3.3 PAYMENT TO WORKERS:

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

3.4. PAINTING :

All exposed metal parts of the equipments including piping, structures, railings etc. if required after installation 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.

The quality of the paint shall be as per the standards of ISI or equivalent and to be of the color as approved by the Engineer. **Supply of oil paint (Primer) is in the bidders scope, if any.**

3.5 SUBMISSION OF DOCUMENTS :

The contractor shall submit following documents at appropriate time either before or during the execution of the work and as directed by Site in-Charge.

1. Test certificates of Pulling and Lifting machines and appliances.
2. Details of workers to be deployed with name, address, category.
3. Details of supervisory staff to be deployed.
4. Authorization for receipt of materials and for signing of Measurement Books etc,
5. Labour license specific to the contract.
6. List of T&P brought into plant premises along with their serial numbers and dates/years of purchase.
7. All the Staff/Workers deputed for the Job should have Insurance Cover and document in this regard should be submitted along with 1st RA Bill.
8. List of consumables brought into plant premises along with their serial numbers and dates/years of purchase, along with test certificates wherever applicable.
9. Insurance policy for the workers to be deployed in this contract.
10. Safety undertaking.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND OTHER CONDITIONS

11. Copy of ESI certificate to be furnished.

The contractor shall submit following documents in report form within 15 days from commissioning of unit after the overhaul/shut down work is completed (except Sl.No.11 to 14 which are required before final bill is processed):

- Details of work executed.
- Measurements against different schedules in compiled form.
- Material issue details.
- Material consumption details.
- Material returns details.
- Details of retrenchment benefits given to workmen.
- Details of issue of PF slip to workmen.
- Details of settlement of accident benefits if any to workmen
- Copies of pay sheets to workmen.
- Details and proof of remittance of PF to workmen (before final bill).
- No dues clearance from different stores of customer
- Valid labour license

3.6 LIST OF MANPOWER REQUIRED

| Sl.No. | Description | Numbers |
|--------|-------------------------|---------|
| 01. | Site In-charge | 01 |
| 02. | Supervisors | 12 |
| 03. | Foreman | 8 |
| 03. | Mill Wright Fitters | 12 |
| 04. | Junior Fitters | 20 |
| 05. | Riggers | 20 |
| 06. | Gas Cutters / LP welder | 6 |
| 07. | Electrician | 4 |
| 08. | Store keeper | 04 |
| 09. | Sarang | 10 |
| 10. | Unskilled worker | 50 |
| 11. | HP Welder | 01 |
| 12. | Carpenter | 02 |

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND OTHER CONDITIONS

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

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

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

3.7 Man power & T&P:

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

3.8 Statutory Inspection

Please refer General and Special Conditions of Contract. In addition to it the scope includes getting the approvals from the statutory authorities (like IBR, smoke nuisance inspector, anti-pollution authorities, labour officials). This includes arranging for inspection visits of such authorities periodically as per requirement, submitting documents etc. and payment of fees connected with it.

3.9 Safety:

Strict Safety measures have to be followed at Site.

Contractor shall also adhere to all the safety provisions of our customer. In case violation of any provision at site fine of Rs.500/- to Rs.2000/- at the discretion of our site in-charge shall be imposed for each of such occasion and shall be recoverable from the contractor's bill.

3.10 Security Deposit

Please refer our "General and special conditions of contracts".

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – III: SPECIAL TERMS AND OTHER CONDITIONS

3.11 Other terms and conditions

- 1.0 **Successful bidder has to extend manpower assistance for minor cleaning/scraping, etc. for carrying vibration measurement and putting balance weights during Trim Balancing at site**
- 2.0 A copy of tender document with each page duly signed and stamped shall be submitted along with your offer as a token of your unconditional acceptance to this tender condition. Also any deviation to the tender conditions shall be submitted in a separate paper duly signed by the bidder, any overwriting / correction by the bidder on the tender will not be recognized and the offer may be rejected on this ground.
- 3.0 General and special conditions of contract' enclosed herewith will be fully applicable, except otherwise stated in this enquiry. In case of any conflict, the conditions specified in this enquiry letter will prevail over that of the 'General and special conditions of contract'

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

4.1 LIST OF TOOLS AND PLANTS TO BE ARRANGED BY CONTRACTOR

01. Taper gauge, slip gauge set, depth gauge and depth micrometer.
02. Feeler gauge sets, feeler strips of 0.03 to 0.10 mm size.
03. One set of 2 meter long feeler gauge strips (0.05 to 1.0 mm).
04. Dial indicators with magnetic bases (at least 2 dials of diameter 40 mm travel – 5 mm).
05. Micrometers (inside and outside up to 300 mm, 450mm, 600mm & 1000mm).
06. Telescopic gauge (2 sets). Bevel protractor and combination sets.
07. Try square.
08. Set of parallel blocks/ V blocks.
09. Vernier calipers, (150 and 300 mm), measuring steel tapes and 5 meters steel rulers.
10. Precision spirit level (with micro head).
11. 2 sets of D.E. and Ring spanners (6-36mm).
12. 2 sets of ox spanners (6 to 20mm and 22-50mm).
13. Allen keys of various sizes (from 2mm. onwards).
14. D.P. Test Kit (with consumables).
15. Crowbars tin cutters, pliers (cutting plier, nose plier grip plier circlip-outside and inside).
16. Screw drivers and sledge hammers – 10 lbs – 1 lbs.
17. Adjustable wrenches, pipe wrenches and heck saws.
18. Single ended spanners (36 Mm and above).
19. Flat, half round, triangular bearing scrappers-8", to 12".
20. Files flat round, half round and square, rough and smooth (sizes 6", 9" and 12").
21. Bench Grinders, straight grinders GQ4 and GQ6, Angle grinders.
22. Reamers upto 30 mm. Taper reamers.
23. Drilling machine with magnetic stand upto –30 mm with drill bits.
24. Flexible grinders with grinding stones and cutters of different Shapes and sizes, Angles Grinders and Sander machine.
25. Number punch, letter punch, centre punch and hole punches etc.
26. Steel wire brushes, wire brush wheels, nylon wire brushes and Painting bushes.
27. Reamers and honing tools with proper jigs and fixtures for carrying out coupling hole reaming/honing.
28. Lifting devices eye bolts, D-shackles, slings of various sizes Guide rods etc.
29. Chain pulley blocks upto 5 tons, 2 tons pull/lift.
30. Copper/Brass rods dia ½" to 1 ½"X450 mm.
31. Tap and die sets 6 to 36 mm.
32. Surface plate 450 X 450 mm.
33. Torch light/hand lamps with cables, 230/24 V transformer.
34. Torque wrench and torque multiplier.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

35. Wooden mallet, Nylon Mallet.
36. Hand glover-asbestos, Manila rope, asbestos cloth leather and Rubber gloves.
37. Set of needle files.
38. Air blower – electric.
39. Electric drills – ¼”, ½”, and 5/8”.
40. Ball pen hammer of various sizes.
41. Gas cutting and heating set with torches regulators, hoses and cylinder minimum two sets).
42. Arc welding generator/rectiformers with regulator, cables, Electrode holders and shields, TIG welding holders.
43. Pneumatic – grinders.
44. Hose pipes for compressed air.
45. Bench vices.
46. Hydraulic jacks 5, 10, 25, 50 & 150 tons capacity and screw jacks- 5 to 10 tons.
47. Hydraulic pump for testing coolers and 500 V megger.
48. Electric switchboards and flood light arrangements with fuse boxes and isolating switches, plugs and sockets.
49. In addition to above T and P contractor will be required to fabricate fixtures such as pullers etc. for removal of any other equipments related to the scope of work.
50. Pedestal fans/air coolers.
51. Wooden sleepers.
52. Wooden Planks.
53. Magnifying glass.
54. Plastic helmets, Fibre helmet.
55. Gas cutting/welding goggles, grinding goggles.
56. Bearing pullers.
57. Tarpaulin.
58. Insulation testers and Meggers 500 V and 1000 V at least 1 No. each.
59. Any other T and P as per requirement and as per our General and special conditions of Contracts.
60. Digital Multimeter
61. Analogue multimeters of Motwane make
62. Scaffolding materials

NOTE:

1. The above list is only indicative and not exhaustive. Arrangement for any other T and P required for completion of the job shall be the responsibility of the contractor and shall be arranged by him.
2. All the tools and tackles/measuring instruments shall be duly tested/calibrated and valid certificate to that effect should be submitted to our site in-charge before the start of work.

TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

4.2 CONSUMABLES TO BE ARRANGED BY CONTRACTOR

(The list is indicative only and not exhaustive)

01. Kerosene oil.
02. Rustolene.
03. Petrol/white Petrol/Benzene/CRC.
04. Grease/Graphite Grease.
05. Hacksaw Blades.
06. Waste cloth/Cotton.
07. Marking/lint free cloth/Muslin.
08. Asbestos cloth/Asbestos cord.
09. Prussian blue.
10. Graphite (flaked) powder/Molybdate/Mosil.
11. Cardiom compound.
12. Holdtite/shellac/Gasket sealing compound.
13. Lead wire 1.0 m/1.5 mm/0.5 mm.
14. Liquid soap.
15. Carborundum grinding paste coarse/fine/Diamond lapping paste.
16. Emery papers/Rolls.
17. Cutoff wheels.
18. Grinding wheels.
19. Oil stones, Mounted wheels, rotary cutters.
20. D. P. test chemicals.
21. Gas Cylinders for cutting/welding.
22. Chalk pieces, marking pens, thermo chalks upto 400c
23. Insulation tape, Johnson Tapes.
24. Sander discs and wheels.
25. Polythelene sheets.
26. Araldite, M. Seal, Instabond, Dendrite.
27. CRC 2-26, white spirit.
28. Electric fuse wire, cables for the connections.
29. Material for Blast cleaning purposes. (A1203, alumina, Sand or Ash etc.

NOTE:

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – V: QUALITY REQUIREMENT

QUALITY REQUIREMENT

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

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter – VI: Time Schedule

6.1 TIME SCHEDULE & MOBILIZATION

6.1.1 INITIAL MOBILIZATION

After receipt of fax LOI, Contractor shall discuss with Project Manager / Construction Manager/BHEL In charge regarding initial mobilization. A small team of manpower consisting of riggers, welders, fitters, helpers along with T& P has to be mobilized 3 days in advance before shutdown of the unit for making necessary arrangements for installation & testing of winches, chain pulley blocks etc. Full-fledged team shall be mobilized one week before shutdown of the unit

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

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

The completion period for the job covered in the scope of work shall be **35 days** from the stopping of Barring gear to starting of Barring gear. However, the total contract period shall be **45 days from date of commencement to machine synchronization (ie Bar to bar)**

The tentative outage schedule of the Boiler as informed by TAPS - Tarapur shall be in the month of April'2013

TECHNICAL CONDITIONS OF CONTRACT (TCC)

Chapter-VII: Terms of Payment

7.1 Payment will be released on completion of activities as below:

- 1) 90% of the lumpsum value shall be payable on completion of all works & machine put on Barring gear
- 2) Final 10% on commissioning / full load operation / completion of all works and also on submission of documents like Workmen compensation Policy, No Dues certificate from Customer, EPF challan, Insurance, Labour License, Labour Payment sheets, Sales Tax registration certificate, EPF registration, No Objection Certificate wrt to surrendering of RFID card from CISF).

Note:

1. Penalty of 1% per day of the total contract value will be levied for improper mobilization of man power and 1% per day for T & P and consumables separately subject to maximum 10% of the contract value shall be deducted from contractor's bill
2. While submitting the invoices, Vendor should mention their Bank Account No. on each of their invoices for the purpose of making e-payment.

7.2 Retention money: Retention amount as indicated in Clause 2.22.1 of Vol I C 'General Conditions of Contract' shall be read as 1% of the total contract value.

The bill due for payment shall be submitted to the Engineer in-charge of BHEL at site for necessary verification and processing through proper channel. It may be noted that payment will be released from the office of the RSM/Nagpur after minimum fifteen days from the date of receipt of the duly verified bill from site.

7.3 Performance Guarantee Period for Workmanship: Guarantee Period as indicated in Clause 2.24.1 of 'General Conditions of Contract' shall be 6 Months.

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8.0 TAXES, DUTIES, LEVIES (Consolidated Rev 02 dated 20/09/2012)

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 12.36 %) 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.

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

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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)~~

~~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

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

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

No reimbursement/recovery on account of increase/reduction in the rate of taxes, levies, duties etc. on input goods/services/work shall be made. Such impact shall be taken care of by the Price

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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 BUILDING & OTHER CONSTRUCTION WORKERS (REGULATION OF EMPLOYMENT AND CONDITIONS OF SERVICE) ACT, 1996 (BOCW Act) AND RULES OF 1998 READ WITH BUILDING & OTHER CONSTRUCTION WORKERS CESS Act, 1996 & CESS RULES, 1998.

In case any portion of work involves execution through building or construction workers, then compliance to the above titled Acts shall be ensured by the contractor and contractor shall obtain license and deposit the cess under the Act. In the circumstances it may be ensured as under:-

- i. It shall be the sole responsibility of the contractor in the capacity of employer to forthwith (within a period of 15 days from the award of work) apply for a licence to the Competent Authority under the BOCW Act and obtain proper certificate thereof by specifying the scope of its work. It shall also be responsibility of the contractor to furnish a copy of such certificate of licence / permission to BHEL within a period of one month from the date of award of contract.
- ii. It shall be the sole responsibility of the contractor as employer to ensure compliance of all the statutory obligations under these act and rules including that of payment / deposit of 1% cess on the extant of work involving building or construction workers engaged by the contractor within a period of one month from the receipt of payment.
- iii. It shall be the responsibility of the sub-contractor to furnish the receipts / challans towards deposit of the cess together with the number, name and other details of beneficiaries (building workers) engaged by the sub-contractor during the preceding month.
- iv. It shall be the absolute responsibility of the sub-contractor to make payment of all statutory payments & compensations to its workers including that is provided under the Workmen's Compensation Act, 1923.