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T E N D E R S P E C I F I C A T I O N

TENDER NO. BHEL/NR/SCT/LALITPUR - 2&3/CHEM CLEAN/992

FOR

"Pre-Boiler Flushing & Chemical cleaning (EDTA) of Boiler of Unit No. 2 and 3 at 3X660 MW LALITPUR STPP."

PART I – TECHNICAL BID

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301(INDIA)

**ISO 9001, ISO 14001,
OHSAS 18001 & SA 8000
certified company
SubContract and Purchase Deptt.**

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301(INDIA)
Phone: 0091-0120- 2416407/ 2416292
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TENDER NO. BHEL/NR/SCT/LALITPUR - 2&3/CHEM CLEAN/992

IMPORTANT NOTE

PURCHASER OF THIS TENDER DOCUMENT IS ADVISED TO CHECK AND ENSURE COMPLETION OF ALL PAGES OF TENDER DOCUMENT AND REPORT ANY DISCREPANCY TIMELY FOR CORRECTIVE ACTION, IF ANY, TO THE ISSUING AUTHORITY BEFORE THE BIDS ARE SUBMITTED. ORIGINAL COPY OF TENDER DOCUMENT COMPLETE IN ALL RESPECTS MUST BE SUBMITTED BACK AS PART OF THE BID WITHOUT WHICH THE SAME IS LIABLE TO BE REJECTED BY BHEL.

THIS TENDER SPECIFICATION ISSUED TO:

M/S----------

Rev 01
1st Jun
2012

NOTICE INVITING TENDER

(Document No PS:MSX:NIT)

Bharat Heavy Electricals Limited

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NOTICE INVITING TENDER (NIT)

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

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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	**BHEL/NR/SCT/LALITPUR - 2&3/CHEM CLEAN/992**	
ii	**Broad Scope of job**	**Pre-Boiler Flushing & Chemical cleaning (EDTA) of Boiler of Unit No. 2 and 3 at 3X660 MW LALITPUR STPP.**	
iii	**DETAILS OF TENDER DOCUMENT**		
a	Volume-IA	*Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc*	*Applicable*
b	Volume-IB	*Special Conditions of Contract (SCC)*	*Applicable*
c	Volume-IC	*General Conditions of Contract (GCC)*	*Applicable*
d	Volume-ID	*Forms and Procedures*	*Applicable*
e	Volume-II	*Price Schedule (Absolute value).*	*Applicable*
iv	**Issue of Tender Documents**	**1. Sale from BHEL PS Regional office at :** **Start : 21/03/15 , Time : 0900 HRS** **Closes: 13/04/15 , Time :1200 HRS** **2. From BHEL website (www.bhel.com)** Tender documents will be available for downloading from website till due date of submission	*Applicable*
v	**DUE DATE & TIME OF OFFER SUBMISSION**	**Date : 13/04/15 , Time : 1500 HRS** **Place : Noida**	*Applicable*
vi	**OPENING OF TENDER**	**Date : 13/04/15** *(Within 2 hours of the latest due date and time of offer submission).*	*Applicable*

		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*	
vii	**EMD AMOUNT**	***Rs 1,50,000/-***	*Applicable*
viii	**COST OF TENDER**	***Rs 2000/-.***	*Applicable*
ix	**LAST DATE FOR SEEKING CLARIFICATION**	**Date: 03/04/2015** *Along with soft version also, addressing to undersigned & to others as per contact address given below*	*Applicable*
x	**SCHEDULE OF Pre Bid Discussion (PBD)**		*Not applicable.*
xi	**INTEGRITY PACT & DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)**		*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	

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 Noida issuing the Tender, along with techno-commercial offer. Bidder may also choose to deposit the Tender document cost by cash at the Cash Office as stated above against sl no iv of 1, on any working day; and in such case copy of Cash receipt is to be enclosed with the Techno Commercial offer. Sale of tender Documents shall not take place on National Holidays, holidays declared by Central or State Governments and BHEL PS HQ at Noida, Sundays and second/ last Saturdays

4.0 Unless specifically stated otherwise, bidder shall deposit EMD through Demand Draft/Pay Order in favour of Bharat Heavy Electricals Ltd, payable at Noida. For other details and for 'One Time EMD' please refer General Conditions of Contract.

5.0 **Procedure for Submission of Tenders**: The Tenderers must submit their Tenders to Officer inviting Tender, as detailed below:

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

6.0 The contents for ENVELOPES and the superscription for each sealed cover/Envelope are as given below. **(All pages to be signed and stamped)**

Sl no	Description	Remarks
	Part-I A	
	ENVELOPE – I superscribed as : PART-I (TECHNO COMMERCIAL BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: **CONTAINING THE FOLLOWING**:-	
i.	Covering letter/Offer forwarding letter of Tenderer.	
ii.	Duly filled-in `No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above. **Note:** a. In case of any deviation, the same should be submitted separately for technical & commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained. b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding. i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender	
iii.	Supporting documents/ annexure/ schedules/ drawing etc as required in line with Pre-Qualification criteria. 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 : Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	
ix.	Volume – I B : Special Conditions of Contract (SCC)	
x.	Volume – I C : General Conditions of Contract (GCC)	
xi.	Volume – I D : Forms & Procedures	
xii.	Volume – II (UNPRICED – without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item	
xiii.	Any other details preferred by bidder with proper indexing.	

	PART-I B	
	ENVELOPE – II superscribed as: PART-I (EMD/COST of TENDER) TENDER NO :	

	NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION: **CONTAINING THE FOLLOWING**:-	
i.	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 2. Cost of Tender (Demand Draft or copy of Cash Receipt as the case may be)	

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

	OUTER COVER	
	ENVELOPE-IV (MAIN ENVELOPE / OUTER ENVELOPE) superscribed as: TECHNO-COMMERCIAL BID, PRICE BID & EMD TENDER NO: NAME OF WORK: PROJECT: DUE DATE OF SUBMISSION: **CONTAINING THE FOLLOWING:**	
i	o Envelopes I o Envelopes II o 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, excepting packages which are on HOLD due to reasons not attributable to Bidder..

II. **PERFORMANCE**: Here 'Monthly Performance' of the bidder for all the packages (**under execution**/ executed during the 'Period of Assessment' in all the Power Sector Regions of BHEL) **SIMILAR** to the packages covered under the tendered scope, excepting packages not commenced shall be taken into consideration. The 'Period of Assessment' shall be 6 months preceding the cut off month. The cut off month for reckoning 'Period of Assessment' shall be the month two (2) months preceding the month corresponding to the 'latest date of bid submission', in the following manner:

(**Note**: For example if 'latest date of bid submission' is in Aug 2011, then the 'performance' shall be assessed for a 6 month period upto and inclusive of June 2011, for all the unit wise identified packages (refer Table I)

i). Calculation of Overall 'Performance Rating' for 'similar Package/Packages' for the tendered scope under execution at Power Sector Regions for the 'Period of Assessment':
This shall be obtained by summing up the 'Monthly Performance Evaluation' scores obtained by the bidder in all Regions for all the similar Package/packages', divided by the total number of Package months for which evaluation should have been done, as per procedure below:

a) $P_1, P_2, P_3, P_4, P_5, \ldots P_N$ 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 = $\mathbf{P_T}$ (ie $P_T = P_1 + P_2 + P_3 + P_4 + .. P_N$)

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 '$\mathbf{T_T}$' for total similar Packages '$\mathbf{P_T}$' for all Regions (i.e $\mathbf{T_T} = T_1 + T_2 + T_3 + T_4 + .. T_N$)

c) Sum 'S_1 ' of 'Monthly Performance Evaluation' Scores ($S_{1\text{-}1}$, $S_{1\text{-}2}$, $S_{1\text{-}3}$, $S_{1\text{-}4}$, $S_{1\text{-}5}$,…. $S_{1\text{-}N}$) for similar package P_1, for the 'period of assessment' 'T_1' (i.e $S_1 = S_{1\text{-}1} + S_{1\text{-}2} + S_{1\text{-}3} + S_{1\text{-}4} + S_{1\text{-}5} + \ldots S_{1\text{-}N}$). 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 '$\mathbf{P_T}$' for all Regions (i.e 'S_T'= $S_1 + S_2 + S_3 + S_4 + S_5 + \ldots S_N$.)

d) **Overall Performance Rating 'R_{BEHL}' for the similar Package/Packages** (**under execution**/ executed during the 'Period of Assessment') in all the Power Sector Regions of BHEL)**:**

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

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

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

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

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

Sl no	Item Description	Details for all Regions							Total
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)	(viii)	(ix)	(x)
1	Similar Packages for all Regions → (under execution/ executed during period of assessment)	P_1	P_2	P_3	P_4	P_5	…	P_N	Total No of similar packages for all Regions = $\mathbf{P_T}$ ie Sum (Σ) of columns (iii) to (ix)
2	Number of Months for which 'Monthly Performance Evaluation' as per relevant formats should have been done in the 'period of assessment for corresponding similar Package (as in row 1)	T_1	T_2	T_3	T_4	T_5	…	T_N	Sum (Σ) of columns (iii) to (ix) = $\mathbf{T_T}$
3	Monthly performance scores for the corresponding period (as in Row 2)	$S_{1\text{-}1}$, $S_{1\text{-}2}$, $S_{1\text{-}3}$, $S_{1\text{-}4}$, … $S_{1\text{-}T1}$	$S_{2\text{-}1}$, $S_{2\text{-}2}$, $S_{2\text{-}3}$, $S_{2\text{-}4}$, … $S_{2\text{-}T2}$	$S_{3\text{-}1}$, $S_{3\text{-}2}$, $S_{3\text{-}3}$, $S_{3\text{-}4}$, … $S_{3\text{-}T3}$	$S_{4\text{-}1}$, $S_{4\text{-}2}$, $S_{4\text{-}3}$, $S_{4\text{-}4}$, … $S_{4\text{-}T4}$	$S_{5\text{-}1}$, $S_{5\text{-}2}$, $S_{5\text{-}3}$, $S_{5\text{-}4}$, … $S_{5\text{-}T5}$	.. … … … …	$S_{N\text{-}1}$, $S_{N\text{-}2}$, $S_{N\text{-}3}$, $S_{N\text{-}4}$, … $S_{N\text{-}TN}$	---
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) = $\mathbf{S_T}$

ii) Calculation of Overall 'Performance Rating' ($\mathbf{R_{BHEL}}$) in case 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during the 'Period of Assessment':

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

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

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

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

Sl no	Overall Performance Rating (R_{BHEL})	Corresponding value of 'L'
1	=60	NA
2	> 60 and ≤ 65	0.4
3	> 65 and ≤ 70	0.35
4	> 70 and ≤ 75	0.25
5	> 75 and < 80	0.2
6	≥ 80	NA

III. 'Assessment of Capacity of Bidder':

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

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

Note:

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

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

IV. **Explanatory note**:

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

b) Identified Packages (Unit wise)

Table-1

	Civil	Electrical & CI	Mechanical
	i). Enabling works ii). Pile and Pile Caps iii). Civil Works including foundations iv). Structural Steel Fabrication & Erection v). Chimney vi). Cooling Tower vii). Others (Civil)	i). Electrical ii). CI iii). Others (Elec & CI)	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)

c) Bidders who have not been evaluated for at least six package months in the last 36 months in the online BHEL system for contractor performance evaluation in BHEL PS Regions, wef July'2010 shall be considered "NEW VENDOR".

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

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

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

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

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

d) In the unlikely event of all bidders shortlisted against Technical and Financial Qualification criteria not meeting the criteria on 'Assessment of Capacity of Bidders' detailed above, OR leads to a single tender response on applying the criteria of 'Assessment of Capacity of Bidders' or due to non-approval by Customer, then BHEL at its discretion reserves the right to consider the further processing of the Tender based on the **Overall Performance Rating** '$\mathbf{R_{BHEL}}$**'** only, starting from the upper band.

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

i. up to Boiler Steam Blowing in case of Steam Generator and Auxiliaries

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

iii. Upto execution of at least 90% of anticipated contract value in case of Civil & Structures (unit wise), Enabling works and upto 90% of material unloading (in tonnage) as per the original contract in case of MM Package.

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

f) Performance evaluation in CL 9 above is applicable to Prime bidder and consortium partner (or Technical tie up partner) for their respective scope of work.

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

11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.

12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be

decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.

13.0 In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.

14.0 Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.

15.0 Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**

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

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

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

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

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

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

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

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

23.0 **Not used**

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 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.

27.0 BHEL reserves the right to go for Reverse Auction (RA) instead of opening the sealed envelope price bid, submitted by the bidder. This will be decided after techno-commercial evaluation. All bidders to give their acceptance for participation in RA. Non-acceptance to participate in RA may result in non-consideration of their bids, in case BHEL decides to go for RA.

In case BHEL decides to go for Reverse Auction, only those bidders who have given their acceptance to participate in RA will be allowed to participate in the Reverse Auction. Those bidders who have given their acceptance to participate in Reverse Auction will have to necessarily submit „online sealed bid" in the Reverse Auction. Non-submission of „online sealed bid" by the bidder will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue."

Information and General Terms and Conditions governing RA shall form part of the RFQ/ Enquiry.

28.0 It may please be noted that guidelines/rules in respect of Suspension of Business dealings', 'Vendor evaluation format', 'Quality, Safety & HSE guidelines', etc may undergo change from time to time and the latest one shall be followed. The abridge version of extant 'Guidelines for suspension of business dealings with suppliers/ contractors' is available on www.bhel.com on "**supplier registration page".**

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

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

Type under MSE	SC/ST owned	Others
Micro		
Small		

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

MSE suppliers can avail the intended benefits only if they submit along with the offer, or before price bid opening, attested copies of either EM-II certificate having deemed validity (two years from the date of issue of acknowledgement in EM-II) or valid NSIC certificate or EM-II certificate along with CA certificate (format enclosed as Annexure - 4) applicable for the year, certifying quantum of investment in plant and machinery within the permissible limit as per the act for relevant status (Micro or Small) where the deemed validity of EM-II is over. Date to be reckoned for determining the deemed validity will be last date of technical bid submission. Non submission of such documents will lead to consideration of their bids at par with other bidders and MSE status of such suppliers shall be shifted to Non MSE supplier till the supplier submits these documents.

MSEs shall be exempted from payment of earnest money at the time of tender deposit. However, there is no exemption of security deposit submission

No benefits shall be applicable for that particular enquiry if the required documents are not submitted before price bid opening.

30.0 Order of Precedence

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

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

for BHARAT HEAVY ELECTRICALS LTD
(SCT)

Enclosure

01. Annexure-1: Pre Qualifying criteria.
02. Annexure-2: Check List.
03. Annexure-3: Modification / Deletions in Standard Clause of General Conditions of Contract (GCC) or Special Conditions of Contract (SCC)
04. Annexure-4: Chartered Accountant certificate for MSMED
05. Annexure-5: General Terms and Conditions of Reverse Auction (RA)
06. Annexure-6: Authorization of representative who will participate in the online Reverse Auction Process
07. Other Tender documents as per this NIT.

ANNEXURE - 1

PRE QUALIFYING REQUIREMENTS

JOB	**Pre - Boiler Flushing & Chemical cleaning (EDTA) of Boiler of Unit no. 2 and 3 at 3X660 MW LALITPUR STPP.**
TENDER NO.	**BHEL/NR/SCT/LALITPUR - 2&3/CHEM CLEAN/992**

SL. NO.	Name and Description of Qualifying Criteria	Bidders claim in respect of fulfilling the PQR Criteria
A	**Submission of Integrity Pact duly signed**	Not Applicable
B	**Technical**	Applicable
B.1	**Bidders who wish to participate should have:** Experience of having successfully completed similar work during last seven years ending last day of the month previous to the one in which applications are invited should be either of the following:	
B.1.1	Three (03) similar completed works costing not less than the amount equal to Rs 24 Lacs.	
	Or	
B.1.2	Two (02) similar completed works costing not less than the amount equal to Rs 30 Lacs.	
	Or	
B.1.3	One (01) similar completed work costing not less than the amount equal to Rs 48 Lacs.	
C	**Financial**	Applicable
C-1	**TURNOVER** Bidder should have achieved an average annual financial turnover (Audited) of Rs 18 Lakhs or more over the last three Financial years (FY) i.e. (2011-12, 2012-13, 2013-14). Bidder shall submit audited annual accounts (balance sheets and profit & loss account) in support of this. In case audited financial statements have not been submitted for all the three years as indicated above, then the applicable audited statements submitted by the bidders against the requisite three years, will be averaged for three years i.e. total divided by three.	

C-2	**NET WORTH** Net worth of bidders based on the latest audited accounts, as furnished for C-1 above, should be positive. Net worth = Paid up share capital + Reserves. (Net worth is required to be evaluated in case of companies)	Applicable
C-3	**PROFIT** Bidder must have earned cash profit in any one of the three financial years as applicable in last three years defined in C-1 above based on latest Audited accounts. 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.	Applicable
D	Assessment of capacity of Bidder to execute the work as per sl. no. 9 of NIT	Applicable(BY BHEL)
E	Approval of customer	Not Applicable
F	Consortium Criteria	Not Applicable

Explanatory Notes:-

1. Relevant documents, meeting above requirements shall be submitted by bidders.
2. "Completed" means, the bidder should have completed the work of Pre-Boiler Flushing & Chemical Cleaning (EDTA) of new installation Boiler not less than 190 MW, along with all equipments.
3. If the qualifying work is completed in the Seven (7) years period specified above, even if it has been started earlier, the same will also be considered meeting the qualifying requirements.
4. The word "similar work" means Pre-Boiler Flushing & Chemical Cleaning (EDTA) of new installation Boiler not less than 190 MW, along with all equipments.

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/Not Applicable	YES/NO
8	Copy of PAN Card	Applicable/Not Applicable	YES/NO
9	Whether all pages of the Tender documents including annexures, appendices etc are read understood and signed	Applicable/Not Applicable	YES/NO
10	Integrity Pact	Applicable/Not Applicable	YES/NO
11	Declaration by Authorised Signatory	Applicable/Not Applicable	YES/NO
12	No Deviation Certificate	Applicable/Not Applicable	YES/NO
13	Declaration confirming knowledge about Site Conditions	Applicable/Not Applicable	YES/NO
14	Declaration for relation in BHEL	Applicable/Not Applicable	YES/NO
15	Non Disclosure Certificate	Applicable/Not Applicable	YES/NO
16	Bank Account Details for E-Payment	Applicable/Not Applicable	YES/NO
17	Capacity Evaluation of Bidder for current Tender	Applicable/Not Applicable	YES/NO

18	Tie Ups/Consortium Agreement are submitted as per format	Applicable/Not Applicable	YES/NO
19	Power of Attorney for Submission of Tender/Signing Contract Agreement	Applicable/Not Applicable	YES/NO
20	Analysis of Unit rates	Applicable/Not Applicable	YES/NO

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

DATE :

AUTHORISED SIGNATORY
(With Name, Designation and Company seal)

ANNEXURE – 3

Modification / Deletions in Standard Clauses of General Conditions of Contract (GCC)

Standard GCC Clauses modified as:-

- **2.12:** Overrun Compensation – Not Applicable
- **2.13:** Interest Bearing Recoverable Advances - Not Applicable
- **2.17:** Price Variation Compensation - Not Applicable
- **2.24**: Performance Guarantee for Workmanship – Not Applicable

ANNEXURE - 4

Certificate by Chartered Accountant on letter head

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

Further verified from the Books of Accounts that the investment of the company as on date…….. as per MSMED Act 2006 is as follows:

1. **For Manufacturing Enterprises:** Investment in plant and machinery (i.e. original cost excluding land and building and the items specified by the Ministry of Small Scale Industries vide its notification No. S.0.1722(E) dated October 5, 2006:
   Rs ..... Lacs

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

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

Category under MSMED Act 2006.

Date:

(Signature)

Name -

Membership number -

Seal of Chartered Accountant

ANNEXURE - 5

GENERAL TERMS AND CONDITIONS OF REVERSE AUCTION (RA)

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

1. For the proposed reverse auction, technically and commercially acceptable bidders only shall be eligible to participate.

2. Those bidders who have given their acceptance for Reverse Auction (quoted against this tender enquiry) will have to necessarily submit "online sealed bid" in the Reverse Auction. Non submission of "online sealed bid" by the bidder for any of the eligible items for which techno commercially qualified, will be considered as tampering of the tender process and will invite action by BHEL as per extant guidelines in vogue.

3. BHEL will engage the services of a service provider who will provide all necessary training and assistance before commencement of on line bidding on internet.

4. In case of reverse auction, BHEL will inform the bidders the details of Service Provider to enable them to contact & get trained.

5. Business rules like event date, time, bid decrement, extension etc. also will be communicated through service provider for compliance.

6. Bidders have to fax the Compliance form before start of Reverse auction. Without this, the bidder will not be eligible to participate in the event.

7. In line with the NIT terms, BHEL will provide the calculation sheet (e.g., EXCEL sheet) which will help to arrive at "Total Cost to BHEL" like Packing & forwarding charges, Taxes and Duties, Freight charges, Insurance, Service Tax for Services and loading factors (for non-compliance to BHEL standard Commercial terms & conditions) for each of the bidder to enable them to fill-in the price and keep it ready for keying in during the Auction.

8. Reverse auction will be conducted on scheduled date & time.

9. At the end of Reverse Auction event, the lowest bidder value will be known on auction portal.

10. The lowest bidder has to fax/e-mail the duly signed and filled-in prescribed format for price breakup including that of line items, if required, as provided on case-to-case basis to Service provider within two working days of Auction without fail.

11. In case BHEL decides not to go for Reverse Auction procedure for this tender enquiry, the Price bids and price impacts, if any, already submitted and available with BHEL shall be opened as per BHEL"s standard practice.

12. Bidders shall be required to read the "Terms and Conditions" section of the auctions site of Service provider, using the Login IDs and passwords given to them by the service

provider before reverse auction event. Bidders should acquaint themselves of the „Business Rules of Reverse Auction", which will be communicated before the Reverse Auction.

13. If the Bidder or any of his representatives are found to be involved in Price manipulation/ cartel formation of any kind, directly or indirectly by communicating with other bidders, action *as per extant BHEL guidelines*, shall be initiated by BHEL and the results of the RA scrapped/ aborted.

14. The Bidder shall not divulge either his Bids or any other exclusive details of BHEL to any other party.

15. In case BHEL decides to go for reverse auction, the H1(s) bidder (whose quote is highest in online sealed bid) may not be allowed to participate in further RA process.

ANNEXURE - 6

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

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

TENDER SPECIFICATION

TENDER NO. BHEL/NR/SCT/LALITPUR - 2&3/CHEM CLEAN/992

FOR

"PRE-BOILER FLUSHING & Chemical cleaning (EDTA) of Boiler of Unit No. 2 and 3 at 3X660 MW LALITPUR STPP."

Bharat Heavy Electricals Limited
(A Govt. Of India Undertaking)
Power Sector – Northern Region,
Plot No. 25 , Sector - 16A ,
Distt. Gautam Budh Nagar, NOIDA – 201 301.INDIA

TECHNICAL CONDITIONS OF CONTRACT

INDEX

3X660MW SUPER CRITICAL TPP, LALITPUR

1	**Name of the Owner**	LALITPUR POWER GEN. CO. LTD. OF BAJAJ HINDUSTAN LTD.
2	**Address**	3X660MW SUPER CRITICAL TPP at Mirchwara and Buraugaon near Utaririver, Lalitpur, U.P.
3	**New Installation**	3 x 660 MW
4	**Nearest Railway station**	Lalitpur railway station (37 kms from site) on Jhansi – Bhopal line
5	**Nearest Road**	Approach to site from NH which about 23 km from Bansi on NH-26 connects Jhansi and Sagar
6	**Nearest City**	LALITPUR
7	**Nearest Airport**	GWALIOR AIRPORT (186 km)
8	**Highest Temperature**	45.1 C^0
9	**Lowest Temperature**	1.9 C^0
10	**Relative Humidity**	87% maximum 22% minimum
11	**Seismic Zone**	III

2.0	**SCOPE OF WORK**
2.1	BHEL has been awarded the work of Design, Manufacture, supply, installation, erection & commissioning of BTG & Station C&I for three units of 3X660 MW **Lalitpur Super Thermal Power Project** at LALITPUR, District: Lalitpur, Uttar Pradesh. The equipment consists of Boiler, Electro-static precipitator, Fans, milling systems, steam turbines, generators, boilers feed pumps, condensate extraction pumps and piping along with the associated auxiliary supports and controls. Steam Generator is a once through super critical boiler having spiral wall Upto intermediate header. Boiler has one Boiler circulation Pump for startup and low load operation purpose. The work covers scope of **Pre-boiler flushing & chemical cleaning (EDTA) of unit no. 2 and 3 at 3x660 MW Lalitpur STPP.**
2.1.1	**Boiler Design Data** SH outlet Pressure - 269.3 Kg/cm^2(g) SH outlet Temperature - 568 ^{0}C Maximum Continuous Rating - 2095.4 T/h
2.1.2	**Water Holding Capacity** Economizer 179 m^3 Separator 15 m^3 Furnace 112 m^3 Super heaters 91 m^3 Re-heater 363 m^3 Start up system 16 m^3 **Total** **776 m^3**
2.2	**The scope of work for each Unit of U# 2 and 3 at 3x660 MW : Lalitpur STPP consists of:**
2.2.1	Pre boiler flushing consists of alkali flushing of feed lines, condensate lines, drip lines, deaerator and heaters etc. and chemical cleaning of Boiler by using EDTA.
2.2.2	The Pre-Boiler system consists of Condensate system, Drip system and Feed water system. Condensate system comprises 3 nos. of Condensate Extraction Pumps, Low Pressure Heaters, Gland steam condenser, Drain cooler, Deaerator Feed Storage Tank, connecting pipelines including excess condensate line up to Condensate Storage Tank. Feed water system comprises 2 nos. Turbine driven & 2 nos. Motor driven Boiler Feed Pumps, their Booster pumps and recirculation lines, High Pressure Heaters, their connecting pipelines up to Economizer inlet. RH & SH spray lines are also

	included for the purpose of flushing. Drip system comprises all LP and HP Heaters shells and Drip lines.
2.2.3	The Bill of Temporary Material indicated in **Annexure I (BHEL supplied)** for carrying out chemical cleaning to be provided by BHEL as free issue. The contractor shall transport this material from stores/location of the material to the site of erection and after completion of chemical cleaning these materials to be dismantled and returned to the BHEL store. Tentative scheme is enclosed with the specifications .The actual scheme of pipelines for the chemical cleaning and flushing process will be provided by BHEL at site. Note; Any loss /damage of the BHEL material will be recovered from the contractor at the prevailing market rates.
2.2.4	The Bill of Temporary Material indicated **in Annexure II (in contractor scope)** for carrying out chemical cleaning to be arranged by successful bidder within lump sum quoted price. All required materials listed in the specifications or even any additional requirement to perform and complete the process shall be provided by the contractor within the awarded price. The bidder must take care of such variations in their offer.
2.2.5	The contractor has to fabricate the Heat exchanger coil to be used in the mixing tank for indirect heating of Chemical solution during EDTA circulation to maintain temperature of the chemical solution between 75 Deg.C to 90 Deg.C.. Heat exchanger is proposed to be made with inlet and outlet headers (Made of Dia. 150 mm pipes) connected with 12 nos. Tubes Of Dia. 60.3 mm and six mtrs length for fitting vertically inside mixing tank. All fabrication material will be providing by BHEL as free issue. Consumables shall be in the scope of contractor. The final design will be finalized at site in consultation with BHEL Engineer.
2.2.6	All consumables i.e. welding electrodes/gases/filler wire/lubricants for the successful completion of chemical cleaning will be supplied by the contractor in Lumsum quoted rate.
2.2.7	Chemicals required for chemical cleaning of boilers will be supplied as a free issue item by BHEL/ owner. They are to be received, transported, preserved, used and handled by the contractor.
2.2.8	During the EDTA process, all the permanent boiler instruments are isolated except for the separator storage tank levels and Boiler circulation pump (BCP). A local DP gauge is installed to monitor differential pressure across BCP. The impulse line tubing for the instruments should be flushed thoroughly with ammoniated DM water after the final draining of EDTA solution.
2.2.9	The Boiler features numerous permanent thermocouples on the spiral evaporator tubes, on the BCP casing and at the BCP Discharge / Economizer inlet to enable

	close and accurate monitoring of the water circuit temperature.
2.2.10	To get representative samples of the process solution, sampling points with sample coolers having adequate cooling water arrangement are provided at the following locations. a. Wet Leg sampling valves 01HAG15AA621 & 01HAG15AA622 b. Temporary return line from boiler. c. Recirculation line of Temporary chemical injection Pumps connected to Temporary Mixing Tank
2.2.11	The MEFCV (Minimum Economizer Flow Control Valve) is kept open at an intermediate position (around 35% so that there is adequate flow during cold condition and the motor current is also less than the overload setting) throughout the chemical cleaning process.
2.2.12	Test coupons (Boiler water wall tube pieces) are placed in the temporary line between BCP discharge and water wall intermediate header drain with proper fixing arrangement to assess the effectiveness of cleaning.
2.2.13	Peening type temporary thermocouples are to be provided in the temp measurement points on the water walls and economizer. Provision has to be made for monitoring temperature in the control room. Instrument cables for measurement of temperature should be temperature compensated. They are to be laid from the measuring instrument to the control room.
2.2.14	Thermocouples to be used should be accurate in the range of 0-200 deg.C. All the instruments pressure & temp. Gauges should be calibrated with valid calibration certificates.
2.2.15	Power source will be provided by the owner at one point at project site. Cables from the source of power to power distribution boards, Motor control centers and to individual equipment are to be provided and laid by the contractor. Earthing of individual motors is to be provided by contractor.
2.2.16	Chemical cleaning system / equipment is to be completed as per the approved scheme.
2.2.17	All temporary connections to the existing systems, all modifications in existing pipelines, valves and in civil works are to be normalized by the contractor after pre-boiler flushing and chemical cleaning of boiler. All temporary supports and piping erected for carrying out the chemical cleaning are to be removed by the contractor after completion of the operations.

2.2.18	Laboratory equipment's for testing of chemicals along with chemical reagents for testing arranged by contractor. Testing personnel (chemists) are to be arranged by the contractor.
2.2.19	Electrical testing equipments like tong-tester, multimeter, Insulation tester etc. are to be arranged by the contractor. Ammeter for each motor is to be provided in its MCC.
2.2.20	Civil works related to pumping units, supports etc. are to be carried out by the contractor.
2.2.21	All temporary lines are to be hydraulically tested (at working pressure of fluid) as required.
2.2.22	The contractor has to make arrangement for pumping out the spent/ neutralized EDTA after 15 days of aeration from neutralizing pit to a suitable location. Proper effluent treatment arrangement is to be made available at site. Neutralizing pit of suitable capacity shall be in the scope of M/s LPGCL.
2.2.23	The contractor shall fabricate pipes, special bends, etc. threading and welding as required.
2.2.24	The contractor shall erect & test all the piping systems, covered in the specification including sampling lines, hangers & supports, valves & accessories in accordance with the drawings furnished. This includes all necessary bolting, welding, pre-heating, stress relieving, testing, and cleaning. System shall be demonstrated in condition to operate continuously in a manner acceptable to the Engineer. Welding shall be used throughout for joining pipes except where flanged screwed or other type joints are specified or shown on the drawings. All piping shall be erected true to the lines & elevation as indicated in the drawings.
2.2.25	Wherever piping erected by the contractor is connected to equipment/ piping erected by the other agencies the joint at the connecting point shall be the responsibility of the contractor of this specification.
2.2.26	The contractor shall be responsible for correct orientation of all valves so that seats, stems & hand wheels will be in desired location. It is the responsibility of the contractor to obtain the information regarding orientation of valves not fully located on drawings before the same are installed.
2.2.27	The adjustment of all supports erected for maintaining the proper slopes of piping wherever required is also included in the scope of the contractor.
2.2.28	No temporary supports should be welded on the piping. In case of absolute necessity prior approval should be taken from BHEL Engineer. In such cases heat treatment if required, shall be carried out by the contractor as part of subject work.
2.2.29	All supports and anchors shall be installed to obtain safe and reliable and complete pipe installation as per instructions of Engineer. Any additional support as called for by Engineer shall have to be fabricated and provided by the contractor. Contractor

	shall install piping in such a way that no excessive or destructive expansion forces exist under any condition. The contractor shall ensure that all supporting elements, anchors & restraint have been installed and adjusted in accordance with the drawings / sketches & other written instructions of the Engineer.
2.2.30	All the valves, including motorized valves, flap valves, etc. shall be serviced and lubricated to the satisfaction of Engineer before erecting the same and during pre-commissioning also. Welding or jointing of extension spindle for valves to suit the site conditions and operational facility shall be part of erection work within the quoted rates.
2.2.31	Additional platforms and ladders of permanent nature incidental to the job for approaching different equipment/ valves as per site requirement, which may not be indicated in drawings, shall be fabricated and installed by the contractor. The materials required will be supplied by BHEL free of cost.
2.2.32	Erection and welding of necessary instrumentation tapping points, valves to be provided on equipment, auxiliaries and pipe lines covered within the scope of this specification will also be the responsibility of the contractor and will be done as per the instructions of BHEL Engineer at no extra cost.
2.2.33	BHEL shall have lien on all T&P's, IMTEs & other equipment of the Contractor brought to the Site. BHEL shall continue to hold the lien on all such items throughout the period of Contract. No material brought to the Site shall be removed from the Site by the Contractor or his Sub-contractors without the prior written approval of the BHEL Engineer.
2.2.34	Adequate numbers of safety equipments like goggles, masks, aprons, gloves, gum boots etc. are to be arranged by the contractor. Minimum requirements for a boiler shall be as under Gum boots (various sizes) 6 Pairs Rubber gloves 6 Pairs Rubber or Polythene aprons 6 Nos Helmets 12 Nos Safety goggles plain glass 6 Nos Face mask (transparent, plastic) 6 Nos First aid box Containing dilute ammonium hydroxide, 50% sodium bicarbonate solution, eye lotion, bandages, tincture of iodine, cotton, burnol etc.
2.3	**Tentative Boiler Chemical Cleaning Process Procedure is as follows:**
2.3.1	**Cold Water Rinse**
2.3.1.1	Before starting the acid cleaning process, the Boiler is rinsed with cold DM water to remove loose debris, rust etc.
2.3.1.2	SH backfilling is done with ammoniated DM water containing 15 ppm Ammonia.

2.3.2	**Hot Water Rinse**
2.3.2.1	Boiler is again filled with ammoniated DM water containing 15 ppm Ammonia at ambient temperature.
2.3.2.2	Boiler is lit up as per O&M instructions and Boiler water temperature is gradually raised to 90 deg C (SST water temperature is observed).
2.3.2.3	Boiler is tripped and BCP is stopped.
2.3.2.4	Boiler is drained in hot condition to the plant water disposal system by keeping the drain valves wide open.
2.3.3 2.**3.3.1**	**Alkali Flushing** The following chemicals are used: 1. Tri Sodium Phosphate 0.1 % 2. Di Sodium Hydrogen Phosphate 0.05% The chemicals are added in the mixing tank along with DM water and the solution is thoroughly mixed by running the temporary pumps on recirculation. Boiler is filled with the solution up to normal working level in the separator.
2.3.3.2	Boiler is lit up as per O&M instructions and Boiler water temperature is gradually raised to 85- 90 deg C (SST water temperature is observed). Samples are analyzed for phosphate and pH on hourly basis. Phosphate replenishment may be required if the PO4 concentration goes down by 50% (from the value at the start of activity). Temperature is maintained for 6 to 8 hours. Boiler is then tripped. BCP is kept running
2.3.3.3	After about 6 to 8 hours the BCP is stopped. Boiler is drained to the plant water disposal system by keeping the drain valves wide open (i.e. without throttling). The drained solution is diluted with plenty of service water.
2.3.4	**Hot Water Rinse**
2.3.4.1	Once draining of boiler is complete, it is refilled with treated DM water containing 15 ppm ammonia. BCP is started and Boiler is lit up. Boiler water temperature is raised to 90 deg C and then Boiler is tripped.
2.3.4.2	BCP is stopped after 30 minutes and Boiler is drained in hot condition to plant water disposal system by keeping the drain valves wide open (i.e., without throttling). pH and PO4 are measured in the drain water.
2.3.5	**Cold Water Rinse**
2.3.5.1	Once draining is complete the Boiler is again filled with DM water containing 15

	ppm ammonia. BCP is started. BCP is stopped after 30 minutes and Boiler is drained to the plant water disposal system. pH and PO4 are measured in the drain water.
2.3.5.2	Cold rinsing is continued till the pH in the drained water is less than 7.5 and phosphate content is less than 10 ppm.
2.3.5.3	All sampling and drain lines are also to be flushed.
2.3.6	**EDTA cleaning & Passivation**
2.3**.6.1**	Boiler is filled with DM water and lighted up.
2.3.6.2	Boiler water temperature is raised to 90 deg C. Then Boiler is tripped and boxed up. BCP is kept running.
2.3.6.3	In order to accommodate EDTA solution, adequate quantity of hot water from the Boiler is drained keeping a close watch on the level in the Separator Storage Tank through the temporary Tygon tube connected suitably to the top and wet leg of the SST. The level in the SST is monitored manually from local and it should NOT go below the visible range in any case.
2.3.6.4	Required quantity of inhibitor is added in the mixing tank containing concentrated Di ammonium EDTA. The temporary pumps connected to Mixing Tank are run on recirculation for proper mixing of inhibitor with EDTA.
2.3.6.5	The solution is injected into the system so as to achieve 4.0 % EDTA concentration in the cleaning solvent in the Boiler.
2.3.6.6	Depending on the volume of hot water that can be drained in one go and the size of the mixing tank, two or more batches of EDTA solution injection may be required. It is ensured that with the BCP running the level in SST should never go below the visible range.
2.3.6.7	Additional ammonia, if required, may be injected to adjust the pH of the cleaning solvent in the range of 5.5 to 6.0. If the pH of the solvent goes beyond 6, formic acid can be used to bring the pH to the desired level. Circulation of the solution is maintained by BCP. Temperature of the EDTA solution is maintained around 90 deg C by controlling the steam input in the temporary heat exchanger (non contact type) installed in the temporary system. Temperature is monitored with the help of temperature gauge mounted locally in the temporary line.
2.3.6.8	When Boiler is filled with EDTA solution OR pH of the solution in the Boiler is in the acidic range, Boiler is NOT to be fired.
2.3.6.9	Counting of time (i.e., T = 0) for the purpose of calculation of minimum contact period will start only after completion of injection of required quantity of EDTA solution into Boiler.
2.3.6.10	Concentration of EDTA and iron in the cleaning solvent are analyzed every 45

	minutes. If required, additional quantity of EDTA may be injected to maintain 1% residual EDTA.
2.3.6.11	Circulation is maintained for 4 hours or till the iron concentration equilibrium in three consecutive samples is reached, whichever is later.
2.3.6.12	ID / FD Fans are run, if required, to bring down Boiler water temperature to around 70 deg C.
2.3.6.13	When the temperature comes down to 70 deg C, ID / FD Fans are stopped. Suitable quantity of the solvent is drained from Boiler to the effluent pit to accommodate injection of ammonia and oxidant for Passivation.
2.3.6.14	Adequate quantity of ammonia is injected to achieve pH of about 9.5.
2.3.6.15 2.3.6.16	Concentrated solution of sodium nitrite is prepared in the mixing tank using DM water. The concentrated solution is injected into the system so as to achieve 0.5% concentration of sodium nitrite in the Passivation solvent. Circulation is continued using BCP for about four (4) hours. The temperature is maintained around 60 ~ 70 deg C. BCP is stopped and the solution is drained into the effluent pit by opening all drain valves.
2.3.6.17	Boiler is refilled with DM water containing 15 ppm ammonia. Circulation is maintained for 30 minutes by running BCP.
2.3.6.18	After stopping BCP the Boiler is drained. Boiler filling, circulation with BCP and draining is continued till conductivity of the final rinse is less than 50 μS/cm.
2.3.6.19	After completion of chemical cleaning activity the next start up of the Boiler should be done within a reasonable duration. If there is going to be a delay of more than 4 weeks, the water circuits and super heaters should be preserved with DM water containing 200 ppm hydrazine and pH adjusted to 9.5-10 (with ammonia) under nitrogen capping.
2.3.7	**COMPLETION CRITERIA**
2.3.7.1	**Hot / cold water rinsing after Alkali flushing** pH < 7.5 PO_4 < 10 ppm
2.3.7.2	**EDTA cleaning & Passivation**
2.3.7.2.1	Chemical cleaning process will be declared complete when the Iron concentration in three (03) consecutive samples stabilizes OR the EDTA contact period (counting started after completion of EDTA injection into the system) of Four (04) hours is achieved, whichever is later.

2.3.7.3 2.3.7.3.1	**Rinsing after Passivation** Conductivity of the effluent < 50 μS/cm
2.3.7.4 2.3.7.4.1 2.3.7.4.2 2.3.7.4.3 2.3.7.4.4	**WASTE TREATMENT & DISPOSAL** Treatment and disposal of the waste and effluents of the chemical cleaning process shall comply with the requirements / stipulations of State Pollution Control Board. Hot DM water after flushing shall be drained into plant normal drain. The organic spent EDTA chemical solution after the cleaning process is drained into the neutralizing pit. The pH of the effluent will be in the range of 8.5 to 9.0 and hence no treatment for pH adjustment is required as it would meet the pH requirement for disposal, subject to verification at site. Compressed air shall be used to destroy the residual Hydrazine & organics. The effluent shall be disposed off after aeration for 10 days or when it has degraded completely, as per State Pollution Control Board norms.
2.3.7.4.5	EDTA storage tank, pipelines and inhibitor carboys shall be cleaned with water and the effluent shall be drained into the neutralizing pit.
2.3.7.4.6	**NOTE:** 1. Drains shall be provided at lowest points of temporary piping. 2. Additional Check lists / Modifications in the layout, if found necessary, shall be made at site. 3. SAPH, which will be in service during chemical cleaning, will be water washed after completion of Chemical cleaning process
2.4	**EMERGENCY PROVISIONS**
2.4.1	Flushing and washing water supplies
2.4.2	Ample supplies of tepid flushing and washing water supplies shall be provided at all possible points of discharge, spillage or escape of chemicals.
2.4.3	Adequate provisions shall be made for emergency treatment of the eyes, comprising eye wash bottles, located conveniently to places where discharge, spillage or escape of chemicals can occur.
2.4.4	Safety shower shall be provided.

2.4.5	Suitable first aid treatment room with outside telephone facilities shall be provided within a reasonable distance of the place where chemicals are being used.
2.4.6	The protective clothing and apparatus required for emergency use shall be made available near the acid cleaning area.
2.5	**FIRST AID TREATMENT**
2.5.1	Splashes of the eye
2.5.2	Immediately flood the eye with water. To be effective the eyelids must be opened. The eyelids should be pushed apart using the thumb and index finger of the left hand. The casualty will probably not be able to open the eye himself because of painful spasms.
2.5.3	If an eye wash bottle is used the jet should not be directed at the front of the eye. It should be directed in from the side, so that flow is over the surface of the eye.
2.5.4	Irrigation should be continued for 5 – 10 minutes after which the casualty should be taken to the first aid room.
2.5.5	Irrigation should be continued in the first aid room. Remember vision is saved by thorough irrigation; no other treatment can prevent damage if this is omitted.
2.5.6	After thorough irrigation the eye should be covered with a pad; the patient should be referred for medical opinion.
2.6	**Irritation of the skin**
2.6.1	If signs of skin irritation occur, the persons should be removed from contact and referred for medical opinion. In the event of the splashing of the skin with chemicals the affected area should be washed thoroughly avoiding spreading contamination to the face and eyes.
2.6.2	Test area will be cordoned off and unauthorized persons entry shall be prohibited. Suitable signboard shall be displayed.
2.6.3	Whenever any inspection is made during the cleaning process, the location should be adequately ventilated.
2.7	**EMERGENCY PROCEDURES:**
2.7.1	The testing team should be aware of the operating procedures of fire extinguishers to be used for quenching minor or major fires.
2.7.2	The testing team should be aware of the procedure to be followed in case of

2.7.3	accidents involving personnel injury. In case of failure of running pump the stand by pump should be started immediately without delay.
2.7.4	An operator posted at the pump area, should be instructed to stop the pumps and properly isolate the system in the event of emergency. All operators should be well conversant with the emergency operating instructions.
	Note: **All the procedure mentioned above is tentative only and all efforts shall be put to mitigate emergency situations.**
2.8	**PRELIMINARY and CIVIL WORKS**
2.8.1	Before starting erection job contractor shall ensure that area connected to his scope of work is sufficiently enclosed against ingress of dust and water and all debris have been cleared of from the floor to a designated area as per instruction of engineer. The contractor shall arrange to get the working area and surroundings cleared daily to ensure the dust free atmosphere and free from seepage water for working and shall maintain sufficient labour and general cleaning of work areas. Delay of work on this account will not be acceptable.
2.8.2	The contractor shall cover all opening on floor and put temporary hand railing on all sides of the floor to avoid any accident to the working personnel.
2.8.3	Any civil works related to pumping units, supports etc are to be carried out by the contractor.
2.8.4	The contractor shall provide his tool stores for special tools and instruments at a convenient place near to the place of working area.
2.9	**Welding requirements**
2.9.1	Contractor must ensure that the welders involved in the job are qualified as per BHEL/LPGCL procedures & statutory requirement (preferably IBR welder to be used)
2.9.2	Contractor to procure and use only BHEL/LPGCL approved welding electrodes.
2.9.3	Contractor to ensure storage, drying facilities of the welding electrodes as per BHEL norms.
2.9.4	Suitable edge preparation is required to make prior to carry out the welding.

2.9.5	Contractor to ensure proper cleaning of welds between the beads
2.9.6	No visible cracks, pinholes or incomplete fusion are allowed.
2.10	**GENERAL**
2.10.1	**Contractor shall ensure following:**
2.10.1.1	Contractor has to maintain contact with local hospital having ambulance facility, scanning & other ultra modern medical facilities required during emergency.
2.10.1.2	Contractor has to ensure pre-employment medical check for all staff & workers.
2.10.1.3	Contractor has to ensure that adequate First Aid facilities with trained nurse are available at work site for emergency purpose. This emergency set-up should include, but not limited to, following Male nurse (in shifts) Oxygen set up Breathing apparatus Eye wash facility Stretcher Trauma blanket Medicines
2.10.1.4	In addition to above, BHEL (through it's another contractor) has arranged ambulance at work site for emergency purpose, which can be utilized by contractor in case of emergency. The charges for the same will be decided mutually at site. In case, under unavoidable circumstances, if the ambulance is not available/ being used elsewhere, the contractor will have to arrange for the same.
2.11	**Social Accountability: The contractor shall comply with following towards Social Accountability;**
2.11.1	The contractor shall not employ any employee less than 15 years of age in pursuant to ILO convention. If any child labour were found to have been engaged, the Contractor shall be levied with expenses of bearing his education expenditure which will include stipend to substantiate appropriate education or employ any other member of family enabling to bear the child education expenditure.
2.11.2	The contractor shall not engage Forced/ Bonded Labour and shall abide by abolition

	of Bonded Labour System (Abolition) Act, 1976.
2.11.3	The contractor shall maintain Health & safety requirement as stipulated in the Contract and Contract Labour (Regulation & Abolition) Act, 1970.
2.11.4	The Contractor shall abide by UN convention w.r.t. Human Rights and shall be liable for Decimation/ Corporal punishment for failure in meeting with relevant requirements.
2.11.5	The Contractor shall abide the requirement of Contract Labour (Regulation & Abolition) Act, 1970 for working hours.
2.11.6	The Contractor shall abide by the Statutory requirement of Minimum Wages Act 1948, payment of Wages Act 1936.
2.11.7	The Contractor shall arrange potable drinking water to its employees & workers.

Sl. No.	**Description**	**Scope /to be Taken care by**		
	FACILITIES	**BHEL**	**CONTRACTOR**	**LALITPUR**
1.	**ESTABLISHMENT**			
1.1.	**FOR CONSTRUCTION PURPOSE**			
1.1.1	Open space for office	**YES**		**Limited space (free of charge) As and where made available by customer M/s LPGCL**
1.1.2	Open space for storage	**YES**		**Limited space(free of charge) As and where made available by customer M/s LPGCL**
1.2	**FOR LABOUR COLONY**			
1.2.1	Open space		**YES**	**Contractor have to make their own arrangement**
1.3	**ELECTRICITY**			
1.3.1.	Electricity for construction purposes (chargeable/free)			**Chargeable Basis To Contractor**
1.3.2	Single point source	**YES**		
1.3.3	Further distribution for the work to be done which include supply of materials & execution		**YES**	**As per LPGCL/UPPCL standard rates Contractor shall install calibrated energy meter for metering electricity consumption**
1.3.4	**Electricity for the office, stores, canteen etc of**			**Chargeable Basis To Contractor**

	the bidder which include:			
1.3.5	Distribution from single point including supply of materials & service		**YES**	**As per LPGCL/UPPCL standard rates Contractor shall install calibrated energy meter for metering electricity consumption**
1.3.6	Supply, Installation & connection of material of Energy meter including operation & maintenance		**YES**	
1.3.7	Duties & deposits including statutory clearances For above		**YES**	
1.3.8	Demobilization of the facilities after completion of works		**YES**	
1.3.9	Electricity for living accommodation of the bidder's Staff, engineers, supervisors etc. on the above Line		**YES**	**Chargeable As per prevailing rates Contractor shall install calibrated energy meter for metering electricity consumption.**
1.4	**WATER SUPPLY**			
1.4.1	**FOR CONSTRUCTION:**			
1.4.1.1	Making the water available at single point		**YES**	**Contractor has to make bore wells itself. wherever approved by M/s LPGCL**
1.4.1.2	Further distribution as per the requirement of work including supply of materials & execution		**YES**	
1.5	**LABOUR COLONY:**			
1.5.1	Making the water available at single point		**YES**	**Contractor have to arrange on his own.**

1.5.2	Further distribution as per the requirement of work including supply of materials & execution		**YES**	
1.6	**LIGHTING**			
1.6.1	For construction work (supply of all materials) 1. at office storage area 2. at preassembly area 3. at construction site/area		**YES**	
1.6.2	For construction work (execution of lighting work/arrangements) 1. at office storage area 2. at preassembly area 3. at construction site/area		**YES**	
1.6.3	Providing the necessary consumables like bulbs, Switches, etc during the course of construction		**YES**	
1.7	**Communications facilities for site operations of the bidder**			
1.7.1	Telephone, fax, internet, intranet, email etc.		**YES**	
1.8	**COMPRESSED AIR SUPPLY**			
1.8.1	Supply of compressor and all other equipments Required for compressor & compressed air System including pipes, valves, storage system etc.		**YES**	

1.8.2	Installation of the above system and operation & maintenance of the same		**YES**	
1.8.3	Supply of all the consumables for the above System during the contract period.		**YES**	
2	**ERECTION FACILITIES**			
2.1	Providing erection drawings for all the Equipments covered under this scope.	**YES**		
2.2	Drawings for construction method	**YES**	**YES**	**In consultation with BHEL**
2.3	As-built-drawings-where ever deviations Observed & executed and also based on Decisions taken at site		**YES**	**do**
2.4	Shipping lists etc for reference &planning the Activities	**YES**	**YES**	**do**
2.5	Preparation of site erection schedules and other input requirements		**YES**	**do**
2.6	Review of performance & revision of site erection schedules in order to achieve the end dates & commitments	**YES**	**YES**	**do**
2.7	Weekly erection schedule based on Sl. No.2.1.5		**YES**	**do**
2.8	Daily erection/work plan based on Sl. No.2.1.7		**YES**	**do**
2.9	Periodic visit of senior official of bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two month		**YES**	**do**
2.10	Preparation of preassembly bay		**YES**	**do**

3.1	BHEL will not be responsible for any loss or damage to the contractor's equipment as a result of variation in voltage or frequency or interruptions in power supply.
3.2	The Contractor shall be responsible for providing all necessary facilities like residential accommodation, transport, electricity, water, medical facilities etc. at his own cost as required under various labour laws and statutory rules and regulations framed there under to the personnel employed by him.
3.3	Provision of distribution lines of both electrical power and water from the central points to the required place with proper distribution boards observing the safety rules laid down by the electrical authorities of the state shall be done by the contractor, supplying all the materials like cables, distribution board, switch boards, TPN, CBS, ELCBS/ MCCBS/ Copper / Brass clamps, copper conductor, change over switches pipes etc. at his own cost. If any failure is caused in supply of the power and water, it is the responsibility of the contractor to make alternate arrangements at his cost. The contractor shall adjust his working shifts / hours accordingly and deploy additional manpower if necessary so as to achieve the targets.
3.4	The contractor while drawing construction power supply from Distribution Board should strictly adhere to following points. a) All electrical installations should be as per Indian Electricity rules. b) All distribution Boards installed by the contractor should be constructed with fireproof materials viz. Steel frames, Bakelite sheets etc. c) Connection for single phase should be taken from phase and neutral. Nowhere the connection should be taken with earth as neutral. d) All electrical connections should be made through connectors, nuts and bolts, switches, plug and sockets. Loose connections or hooking up of wires shall not be permitted. Contractor has to make their own earthing arrangement for their equipment / DB earthing. e) All electrical equipment / tools and plants should be properly earthed. DBs to be earthed diagonally opposite at two points. f) Contractor should use "MCCB" and "ELCB" either on incoming or outgoing connections to the DBs. g) Contractor should ensure that all the CBs / TPNs/ Fuses/ MCCB / ELCB cables etc. should be of adequate rating/ capacity. h) For permission of supply connections contractor has to submit a test report of their installations with a single line diagram of connected/ proposed loads.
3.5	Adequate lighting arrangement such as flood lights, hand lamps and area lighting shall be arranged by the contractor at the site of construction, storage area etc within finally accepted rates.
3.6	In case of power cuts / load shedding no compensation for idle labour or extension of time for completion of work will be given to contractor.

3.7	The contractor should provide sample testing facilities like chemical lab, chemists and required accessories within the firm price of contract.
3.8	Road permits / Other documents required for despatching their material has to be arranged by the party.
3.9	On completion of work or as and when required by BHEL, all the temporary buildings, structures, pipe lines, cables etc. Shall be dismantled, returned to BHEL stores and levelled and debris shall be removed, as per instructions of BHEL, by the contractor at his cost. In the event of his failure to do so, the Engineer will get it done and expenses incurred shall be recovered from the contractor along with prevailing overheads. The decision of BHEL Engineer in this regard shall be final.
3.10	Electricity used for running of pumps and motor directly related to commissioning activities shall be made available free. However, it is chargeable for construction activities like welding etc.

4.0	**T&P AND MMD DEPLOYED BY CONTRACTOR**
4.1	T&Ps and IMTEs (Inspection, Measuring & Testing Equipment), which are required for successful and timely execution of the work covered within the scope of this tender, shall be arranged and provided by contractor within the finally accepted rate. In the event of the failure of contractor to bring necessary and sufficient T&Ps/ and IMTEs, BHEL will be at liberty to arrange the same at the risk and cost of contractor and hire charges as applicable shall be deducted from contractor's bill. Decision of BHEL in this regard shall be final and binding on contractor.
4.2	All distribution boards, connecting cables/ welding cables, wire ropes, hoses etc. including temporary air/ water/ electrical connections etc, shall have to be arranged by the contractor at his own cost.
4.3	Contractor shall ensure deployment of reliable and calibrated IMTEs (Inspection, measuring and Test equipment). The IMTEs shall have test/ calibration certificates from authorized/ Govt. approved/ accredited agencies traceable to National/ International standards. Each IMTE shall have a label indicating calibration status i.e. date of calibration, calibration agency and due date for calibration. A list of such instruments deployed by contractor at site with its calibration status is to be submitted to BHEL Engineer for control.
4.4	Re-testing/ re-calibration shall also be arranged at regular intervals during the period of use as advised by BHEL Engineer with in the contract period. The contractor will also have alternate arrangements for such IMTE so that work does not suffer when the particular instrument is sent for calibration. Also if any IMTEs not found fit for use, BHEL shall have the right to stop the use of such item and instruct the contractor to deploy proper item and recall i.e. repeat the readings taken by that instrument. Failing which BHEL may deploy IMTEs and re-take the readings at contractor's cost.
4.5	Contractor to use his own T&P for the unloading, loading & transportation of the material.

5.0

S .NO.	Description	Qty.	Remarks
1.	Crane-135 MT	01 nos.	On Sharing basis

5.1

NOTES:-	
5.1.1	**Cl.4.2.2.16 c.) of SCC** shall be read as day-today upkeep and running maintenance like filling topping up of lubricants, changing filters, etc including repair of self-starter, batteries and dynamo of these cranes shall be the responsibility of the contractor. If on checking it is found that the same is not followed, BHEL will exercise its right to get the job/works done at the risk and cost of contactor. BHEL may also provided cranes through crane hiring agencies in which case the day-to-day upkeep and running maintenance shall be excluded from scope of contractor.
5.1.2	**Cl.4.2.2.16 e.) Of SCC The operator for BHEL's cranes 100 MT & above capacity being provided by BHEL free of cost. Further, Helpers and fuel for operation of all BHEL cranes shall be provided by contractor within the final accepted rates**.
5.1.3	Crane will be provided on sharing basis on specific instruction of the BHEL Engineer as per the work requirement.
5.1.4	The contractor shall make necessary arrangement like lying of steel plates, assembly & dismantling of heavy lift attachment, boom, jib etc. for movement and operation of crane.

<table>
<tr><td>6.0</td><td>TIME SCHEDULE</td></tr>
<tr><td>6.1</td><td>The contractor is required to commence the work within 15 days from the date of issue of LOI unless BHEL decides to fix any other later date. However, the actual date of start of work, to fix up the zero date of the contract, will be certified by BHEL Engineer after adequate mobilisation of manpower and T&Ps by the contractor.</td></tr>
<tr><td>6.2</td><td>Entire work as detailed in the tender specifications shall be completed within 12 (Twelve) months from the date of start of work as per programme/schedule indicated by BHEL Engineer.

Programme for execution of work for each unit shall be tentatively as follows:

<table>
<tr><td>Preparatory works for Pre-Boiler flushing</td><td>– 15 days approx.</td></tr>
<tr><td>Process Time for Pre-Boiler flushing, rinsing etc.</td><td>– 5 days approx.</td></tr>
<tr><td>Preparatory works for Chemical cleaning</td><td>– 30 days approx.</td></tr>
<tr><td>Process Time for Chemical cleaning, sample testing etc.</td><td>- 5 days approx.</td></tr>
<tr><td>Aeration of effluent and their disposal</td><td>-20 days approx.</td></tr>
<tr><td>Approx. time for completion for Chemical cleaning</td><td>-3 months</td></tr>
</table>

NOTE:

The programme of works and time period for Unit no. 2 and 3 shall be decided jointly along with BHEL Engineer/ Customer M/s LPGCL at site depending upon the work fronts availability.</td></tr>
<tr><td>6.3</td><td>The work under the scope of this contract is deemed to be complete in all respects, only when the contractor has discharged all the responsibilities laid down in the contract. The decision of BHEL on completion date shall be final and binding on the contractor.</td></tr>
</table>

7.0 TERMS OF PAYMENT

7.1 The 'Engineer' will certify regarding the actual work executed in the measurement books and bills, which shall be accepted by the contractor in measurement book.

7.2 Contractor shall submit bills for the work completed under the specification detailing work done. The format for billing shall be approved by BHEL before raising invoices.

7.3 Subject to any deduction which BHEL may be authorised to make under the contract, the contractor on the certificate of the Engineer at site is entitled for payment as explained hereunder:

7.3.1 **For Sl. No. 1 of Rate Schedule (95 % of the contract value)**

Activity	For Unit#2	For Unit#3
on successful completion of chemical cleaning using EDTA as certified by BHEL Engineer	35% of **the contract value**	35% of **the contract value**
on successful completion of pre boiler flushing as certified by BHEL Engineer	12.5% of **the contract value**	12.5% of **the contract value**
Total	47.5%	47.5%

7.3.2 **Balance 5% of the contract value shall be payable as ;**

7.3.2.1 2.5% of the above value shall be payable on completion of all pending work, reconciliation of material wherever required, area cleaning etc.

7.3.2.2 The balance 2.5% of the above value shall be payable after 3 months on contractors discharging his responsibilities as stipulated in this contract and on passing of final bill. The SD amount, if any, deducted by the BHEL Site from the contractor's RA bills, shall be released along with this final payment.

Note: Above payment shall be released after adjustment of the contract value based on actual work carried out.

7.3.3 No separate payment shall be made for any temporary structures, lifting arrangements for testing and other NDT etc., as all these activities shall be performed as integral to erection work as per site requirement and as directed by Engineer.

8.0	**TAXES, DUTIES, LEVIES** 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	**Service Tax & Cess on Service Tax** Service Tax and Cess on Service Tax as applicable on output Services are excluded from contractor's scope; therefore contractor's price/rates shall be *exclusive of Service Tax and Cess on Output Services.* Contractor shall obtain prior written consent of BHEL before billing the amount towards such taxes. The Service Tax Rules permit more than one option or methodology for discharging the liability of tax/levy/duty and BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the Contractor. Contractor shall submit to BHEL documentary evidence of Service Tax registration certificate specifying name of services covered under this contract. For the purpose of claiming any Service Tax from BHEL, the following procedure shall be adopted : Contractor shall submit serially numbered Service Tax and Cess Invoices, 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 registration number of the contractor 2. The name and address of the party receiving taxable service (BHEL) 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 for payment of Service Tax by BHEL. Where more than one nature of Service under Service Tax Rules is involved, the invoice mentioned above shall contain the break up of all values for each nature of Service. Name and address of the contractor should be same in the service tax invoice and monthly bill. Any change in the name and address in past should be supported by documentary evidence duly certified by the registering authority.

	Purpose of above requirements, inter alia, is to enable availment of CENVAT credit by BHEL. As per recent amendment time restrictions for taking cenvat credit is within Six months from date of invoice. Wherever CENVAT credit could not be availed by BHEL within statutory time limit of 6 months due to delay in submission of invoice or for any other reason attributable to contractors, liability towards loss of such CENVAT credit shall be passed on to contractors.
8.2	**VAT (Sales Tax /WCT)** The rates quoted by the Contractor shall be inclusive of VAT/Sales Tax and BHEL shall not reimburse any amount on this account due to any reason whatsoever. 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. Deduction of tax at source shall be made as per the provisions of law unless otherwise found exempted. In case tax is deducted at source as per the provisions of law, this is to be construed as an advance tax paid by the contractor and no reimbursement thereof will be made unless specifically agreed to. Contractor has to make his own arrangement at his cost for completing the formalities, if required, with Sales Tax/VAT Authorities, for bringing all their material, plant and equipment etc at site for the execution of the work, including arrangement of Road Permits if and as applicable under the relevant VAT Act.
8.3	**Modalities of Tax Incidence on BHEL** Wherever the relevant tax laws permit more than one option or methodology for discharging the liability of tax/levy/duty, BHEL will have the right to adopt the appropriate one considering the amount of tax liability on BHEL/Client as well as procedural simplicity with regard to assessment of the liability. The option chosen by BHEL shall be binding on the Contractor for discharging the obligation of BHEL in respect of the tax liability to the contractor.
8.4	**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 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.

9.0	**OTHERS**
9.1	For reverse auction/ for Price Bid opening, only those bidders will be considered who will be qualified for the subject job on the basis of pre-qualification evaluation/ Techno-commercial bids. BHEL reserves the right to reject the bidders with unsatisfactory past performance in the execution of a contract. BHEL's decision in this regard shall be final & binding.
9.2	**OVER RUN** Overrun clause no. 2.12 given in GCC shall not applicable for this contract.
9.3	**INTEREST BEARING ADVANCE** Clause no. 2.13 given in GCC shall not applicable for this contract.
9.4	**PRICE VARIATION** Price variation clause no. 2.17 given in GCC not applicable for this contract.
9.5	**PERFORMANCE GUARANTEE** Clause no. 2.24 of GCC is not applicable for this contract.

ANNEXURE- I

List of BHEL supplied Temporary Piping Material for Pre-boiler flushing and Chemical Cleaning of Boiler using EDTA at 3X660 MW Lalitpur STPP

A. Temporary Piping

SR NO.	DESCRIPTION	MATERIAL SPECN	QUANTITY
1	PIPE Ø 406.4 X 12.7	SA 106 GR B	30 m
2	PIPE Ø 323.9 X 9.57	SA 106 GR B	30 m
3	PIPE Ø 273 X 9.1	SA 106 GR B	700 m
4	PIPE Ø 219.1 X 8.18	SA 106 GR B	250 m
5	PIPE Ø 168.3 X 7.11	SA 106 GR B	300 m
6	PIPE Ø 114.3 X 6.02	SA 106 GR B	300 m
7	PIPE Ø 48.3 X 5.08	SA 106 GR B	300 m
8	PIPE Ø 21.3 X 3.73	SA 106 GR B	100 m
9	PIPE Ø 273.1 X 9.1	API 5LGRB (ERW)	1500 m
10	ASME B16.9 BW LR 90DEG ELBOW Ø 168.3 X 7.11	SA 234 WPB	15 NO.
11	ASME B16.9 BW LR 90DEG ELBOW Ø 219.1 X 8.18	SA 234 WPB	15 NO.
12	ASME B16.9 BW LR 90DEG ELBOW Ø 114.3 X 6.02	SA 234 WPB	12 NO.
13	ASME B16.9 BW LR 90DEG ELBOW Ø 273 X 9.1	SA 234 WPB	15 NO.
14	ASME B16.9 BW EQ TEE ELBOW Ø 273 X 9.1	SA 234 WPB	12NO.
15	ASME B16.9 BW EQ TEE ELBOW Ø 219.1 X 8.18	SA 234 WPB	4 NO.
16	SW EQUAL TEE NB - 1.5 INCH CL-3000	SA105	2 NO.
17	ASME B16.9 BW UN EQ TEE Ø 323.9 X 9.57 / Ø 273 X 9.1	SA 234 WPB	12 NO.
18	ASME B16.9 BW UN EQ TEE Ø 273.9 X 9.1 / Ø 219.1 X 8.18	SA 234 WPB	8 NO.
19	ASME B16.9 BW UN EQ TEE	SA 234 WPB	1 NO.

	Ø 323.9 X 9.57 / Ø 168.3 X 7.11		
20	ASME B16.9 BW UN EQ TEE Ø 323.9 X 9.57 / Ø 114.3 X 6.02	SA 234 WPB	1 NO.
21	ASME B16.9 BW UN EQ TEE Ø 273 X 9.1 / Ø 219.1 X 8.18	SA 234 WPB	1 NO.
22	ASME B16.9 BW UN EQ TEE Ø 273 X 9.1 / Ø 168.3 X 7.11	SA 234 WPB	1 NO.
23	SW UNEQUAL TEE NB - 1.5 INCH/0.5 INCH CL-3000	SA105	6 NO.
24	ASME B16.9 BW REDUCER Ø 323.9 X 9.57 / Ø 273.3 X 9.1	SA 234 WPB	2 NO.
25	ASME B16.9 BW REDUCER Ø 273.3 X 9.2 / Ø 219.1 X 8.18	SA 234 WPB	14 NO.
26	ASME B16.9 BW REDUCER Ø 219.1 X 8.18 / Ø 168.3 X 7.11	SA 234 WPB	4 NO.
27	ASME B16.9 BW REDUCER Ø 168.3 X 7.11 / Ø 114.3 X 6.02	SA 234 WPB	6 NO.
28	ASME B16.11 SW STUB NB-15 CLASS -3000 (CS)	SA 105	12 NO.
29	ASME B16.11 SW STUB NB-40 CLASS -3000 (CS)	SA 105	4 NO.
30	PLATE	IS2062 Fe410WA	12 mm X 2 m X 120 m
31	TEMPERATURE STUB M33X2 (CS)	SA105	4 NO.
32	PACKING RING M33 X 2	IS 1972	4 NO.
33	SCREW PLUG M33 X 2	SA 105	4 NO.
34	CHANNEL 150 mm		300 m
35	ISMB BEAM 600 mm, each 10 m length		8 nos

B. Acid Cleaning Valves

Sl. No.	DESCRIPTION	MATERIAL SPECN	QUANTITY (In Nos.)
1	HAND OPERATED GATE VALVE, NB 300, CLASS 300	Carbon steel	4
2	HAND OPERATED GATE VALVE, NB 250, CLASS 300	Carbon steel	4

3	HAND OPERATED GLOBE VALVE, NB 250, CLASS 300	Carbon steel	2
4	HAND OPERATED GATE VALVE, NB 250, CLASS 300	Carbon steel	3
5	NRV, Nb250, CLASS 300	Carbon steel	4
6	HAND OPERATED GATE VALVE, NB 200, CLASS 300	Carbon steel	6
7	HAND OPERATED GATE VALVE, NB 150, CLASS 300	Carbon steel	3
8	HAND OPERATED GATE VALVE, NB 100, CLASS 300	Carbon steel	3
9	HAND OPERATED GATE VALVE, NB 80, CLASS 300	Carbon steel	3
10	HAND OPERATED GATE VALVE, NB 50, CLASS 800	Carbon steel	20
11	HAND OPERATED GATE VALVE, NB 25, CLASS 800	Carbon steel	20

Note; In addition to above list any pipe ,channel, beam, angles, plates required for successful completion of the pre-boiler flushing and chemical cleaning will be provided by the BHEL to the bidder.

ANNEXURE- II

Tentative List of IMTEs for Pre-boiler flushing and Chemical Cleaning of Boiler using EDTA at 3X660 MW Lalitpur STPP in Contractor Scope

MS Tank (covered), rectangular, 70 Cu M with supporting structure for mixing the chemicals	01 No.
MS Tank (covered), rectangular, 40 Cu M with supporting structure for storage of EDTA	01 No.
Pump, 200 Cu M / hr, 150 M (for circulating EDTA at 95 deg C) With strainer, base frame and spares along with drive motor, 415 V, 160 KW With starter, ammeter, cable etc. with MCC and distribution board	05 Sets
Pump, 20 Cu M / hr, 05 Kg/cm^2 (for handling EDTA) Along with suitable drive motor with starter, ammeter, cable etc. With MCC and distribution board	02 Sets
Pump, 20 Cu M / hr, 02 Kg/cm^2 (for handling Ammonia) Along with suitable drive motor with starter, ammeter, cable etc. With MCC and distribution board	02 Sets
Power Cable from source to distribution board	200 Meters
PVC Hose Pipe, 50 mm dia	50 Meters
Sample Coolers	03 Nos.
Mineral wool, 40 mm thick	800 Nos
Instruments (IMTEs) :	
Pressure Gauge, 0 - 20 Kg /cm^2	07 nos.
Pressure Gauge, 0 - 06 Kg /cm^2	04 nos.
Thermometer, 0 – 100 deg. C	03 nos.
Thermocouple (K type), 1000 mm long with compensating cable up to control room	02 nos.
Pressure transmitter, 0 – 5 Kg /cm^2	02 nos.

Safety Appliances	APR
Laboratory testing equipment & reagents	APR

*APR- As per requirement assessed by BHEL, Engineer In charge

*Requirement above is tentative and contractor may be required to arrange additional T&P and IMTEs as per requirement given by BHEL Site in charge to complete the process.

Sub: - "Pre-Boiler Flushing & Chemical cleaning (EDTA) of Boiler of Unit no. 2 and 3 at 3X660 MW Lalitpur STPP."

SL. NO.	DESCRIPTION OF WORK	TOTAL AMOUNT FOR TWO UNITS (IN RS)
1	**Lumpsum price** for carrying out Pre-boiler flushing & Chemical cleaning (EDTA) of Boiler Unit No. 2 and 3 at 3x660 MW Lalitpur STPP as per tender specifications.	

NOTES:-

1) The contractor has to handle / erect / commission all the items indicated by BHEL for successful completion of chemical cleaning work within the quoted rate.
2) Evaluation of bids shall be done on total amount against this Rate Schedule / BOQ.