

# TENDER SPECIFICATION

## BHE/PW/PUR/SKT-PIN/1177

FOR

**A:- CW Pump:** Receipt of materials from BHEL Store / storage yards; Handling at BHEL Store / storage yards / site of works; Transportation between BHEL Store / storage yards and site of works; preparation of foundations; assembly, blue matching, erection, leveling and alignment of loose components of (Vertical Type) Cooling Water Pump sets - 5 Nos. [Pump Capacity-19900 M3/hr, HEAD (Bowl) =25.5 m, SPEED - 490 RPM, Supplier: BHEL Hyderabad] and Motor (2200 kW, 6600 Volts 12 POLE, 497 RPM, MAKE-BHEL BHOPAL); fabrication, erection & alignment of stainless steel pipes/tubes up to Dia. 60.3 for gland sealing/pump drains etc. which are supplied along with CW pumps and its welding by GTAW process with ER-347 / ER-309 and NDT of joints; grouting of CW Pump foundation bolts, Base plates, thrust block assembly (welding with E7018 electrodes may be required) and anchoring bolts etc. with non-shrink (free flow) grout materials Conbextra GP-2 cement; testing; trial run, commissioning and handing over for Unit-3 &4

AND

**B:- Vertical Turbine Pump :** Receipt of materials from BHEL Store / storage yards; Handling at BHEL Store / storage yards / site of works; Transportation between BHEL Store / storage yards and site of works; preparation of foundations; fabrication of packer plates from raw materials, cutting of required shims, drilling, tapping, blue matching of components/equipment, assembly / trial assembly of components, erection, leveling and alignment of loose components, welding, adjustment pump shafts, greasing components (as required) of Vertical Turbine Pump with Motor – 24 sets as per the details mentioned in Annexure-A); grouting of Vertical Turbine Pumps foundation bolts & Sole plates with non-shrink (free flow) grout materials Conbextra GP-2 cement; testing; trial run, commissioning and handing over for Unit-3 &4

AT

SIKKA THERMAL POWER STATION  
GUJARAT STATE ELECTRICITY CORPORATION LIMITED  
DIST- JAMNAGAR , GUJARAT  
VOLUME – I

CONSISTING OF:

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



Bharat Heavy Electricals Limited

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## **Tender Specification Issue Details**

**Tender Specification No: BHE/PW/PUR/SKT-PIN/1177**

FOR

**A:- CW Pump:** Receipt of materials from BHEL Store / storage yards; Handling at BHEL Store / storage yards / site of works; Transportation between BHEL Store / storage yards and site of works; preparation of foundations; assembly, blue matching, erection, leveling and alignment of loose components of (Vertical Type) Cooling Water Pump sets - 5 Nos. [Pump Capacity-19900 M3/hr, HEAD (Bowl) =25.5 m, SPEED - 490 RPM, Supplier: BHEL Hyderabad] and Motor (2200 kW, 6600 Volts 12 POLE, 497 RPM, MAKE-BHEL BHOPAL); fabrication, erection & alignment of stainless steel pipes/tubes up to Dia. 60.3 for gland sealing/pump drains etc. which are supplied along with CW pumps and its welding by GTAW process with ER-347 / ER-309 and NDT of joints; grouting of CW Pump foundation bolts, Base plates, thrust block assembly (welding with E7018 electrodes may be required) and anchoring bolts etc. with non-shrink (free flow) grout materials Conbextra GP-2 cement; testing; trial run, commissioning and handing over for Unit-3 &4

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AT

**SIKKA THERMAL POWER STATION  
GUJARAT STATE ELECTRICITY CORPORATION LIMITED  
DIST- JAMNAGAR , GUJARAT**

EARNEST MONEY DEPOSIT: Refer Notice Inviting Tender

LAST DATE FOR                      Refer Notice Inviting Tender  
TENDER SUBMISSION

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

M/s. ....

.....

PLEASE NOTE:  
THESE TENDER SPECS DOCUMENTS ARE NOT TRANSFERABLE.

For Bharat Heavy Electricals Limited

AGM (Purchase)  
Place: Nagpur  
Date:

1177

# NOTICE INVITING TENDER

Bharat Heavy Electricals Limited



Ref: BHE/PW/PUR/SKT-PIN/1177

Date: 30/08/2013

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

To

Dear Sir/Madam

**Sub : NOTICE INVITING TENDER**

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

**1.0 Salient Features of NIT**

SL NO	ISSUE	DESCRIPTION
i	TENDER NUMBER	BHE/PW/PUR/SKT-PIN/1177
ii	Broad Scope of job	<b><u>A:- CW Pump:</u> Receipt of materials from BHEL Store / storage yards; Handling at BHEL Store / storage yards / site of works; Transportation between BHEL Store / storage yards and site of works; preparation of foundations; assembly, blue matching, erection, leveling and alignment of loose components of (Vertical Type) Cooling Water Pump sets - 5 Nos. [Pump Capacity-19900 M3/hr, HEAD (Bowl) =25.5 mlc, SPEED - 490 RPM, Supplier: BHEL Hyderabad] and Motor (2200 kW, 6600 Volts 12 POLE, 497 RPM, MAKE-BHEL BHOPAL); fabrication, erection &amp; alignment of stainless steel pipes/tubes up to Dia. 60.3 for gland sealing/pump drains etc. which are supplied along with CW pumps and its welding by GTAW process with ER-347 / ER-309 and NDT of joints; grouting of CW Pump foundation bolts, Base plates, thrust block assembly (welding with E7018 electrodes may be required) and anchoring bolts etc. with non-shrink (free flow) grout materials Conbextra GP-2 cement; testing; trial run, commissioning and handing over <b>AND</b></b>

		<p><b>B:- Vertical Turbine Pump :</b> Receipt of materials from BHEL Store / storage yards; Handling at BHEL Store / storage yards / site of works; Transportation between BHEL Store / storage yards and site of works; preparation of foundations; fabrication of packer plates from raw materials, cutting of required shims, drilling, tapping, blue matching of components/equipment, assembly / trial assembly of components, erection, leveling and alignment of loose components, welding, adjustment pump shafts, greasing components (as required) of Vertical Turbine Pump with Motor – 24 sets as per the details mentioned in Annexure-A); grouting of Vertical Turbine Pumps foundation bolts &amp; Sole plates with non-shrink (free flow) grout materials Conbextra GP-2 cement; testing; trial run, commissioning and handing over.  <b>AT</b>  <b>SIKKA THERMAL POWER STATION, GUJARAT STATE ELECTRICITY CORPORATION LIMITED, DIST- JAMNAGAR , GUJARAT.</b></p>	
iii	<b>DETAILS OF TENDER DOCUMENT</b>		
a	Volume-IA	<i>Technical Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc</i>	<i>Applicable</i>
b	Volume-IB	<i>Special Conditions of Contract (SCC)</i>	<i>Applicable</i>
c	Volume-IC	<i>General Conditions of Contract (GCC)</i>	<i>Applicable</i>
d	Volume-ID	<i>Forms and Procedures</i>	<i>Applicable</i>
e	Volume-II	<i>Price Schedule (Absolute value).</i>	<i>Applicable</i>
iv	<b>Sales of Tender Documents</b>	<p>1. <b><u>Sale from BHEL PS Regional office at :</u></b>  <b>Start :30/08/2013</b>  <b>Closes: 05/09/2013 , Time :16.00 Hrs</b></p> <p>2. From BHEL website (<a href="http://www.bhel.com">www.bhel.com</a>)  Tender documents can however be downloaded from website till due date of submission</p>	<i>Applicable</i>
v	<b>DUE DATE &amp; TIME OF OFFER SUBMISSION</b>	<p><b>Date :06/09/2013, Time :15.00Hrs</b>  <b>Place : <u>BHEL PS Regional office at :Nagpur</u></b>  Tenders being submitted through representative shall be handed over to any of the following BHEL officials after making entry/registration at the reception:   Pratish Gee Varghese / Engineer(Purchase)  Nirmal P.G/ Asst.Engineer(Purchase).</p>	<i>Applicable</i>
vi	<b>OPENING OF TENDER</b>	<p><b>1 hour after the latest due date and time of Offer submission</b>  Notes:  (1) In case the due date of opening of tender becomes a non-working day, tenders shall be opened on next working day at the same time.</p>	<i>Applicable</i>

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		<i>(2) Bidder may depute representative to witness the opening of tender</i>	
vii	<b>EMD AMOUNT</b>	<i>Rs 1,50,000/- (Rupees One Lakh and Fifty Thousand Only)</i>	<i>Applicable</i>
viii	<b>COST OF TENDER</b>	<i>Rs 2000/-.</i>	<i>Applicable</i>
ix	<b>LAST DATE FOR SEEKING CLARIFICATION</b>	<i>Date: Atleast 2 days before the due date of offer submission Along with soft version also, addressing to undersigned &amp; to others as per contact address given below</i>	<i>Applicable</i>
x	<b>SCHEDULE OF Pre Bid Discussion (PBD)</b>	<i>Date : Not applicable.</i>	<i>Not applicable.</i>
xi	<b>INTEGRITY PACT &amp; DETAILS OF INDEPENDENT EXTERNAL MONITOR (IEM)</b>		<i>Not Applicable</i>
xii	<b>Latest updates</b>		<b><u>Applicable</u></b>

- 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 \_\_\_\_\_ 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 \_\_\_\_\_, 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 \_\_\_\_\_. 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)**

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Sl no	Description	Remarks
	<b>Part-I A</b>	
	<p><b>ENVELOPE – I superscribed as :</b> PART-I (TECHNO COMMERCIAL BID) TENDER NO : NAME OF WORK : PROJECT: DUE DATE OF SUBMISSION:</p> <p><b>CONTAINING THE FOLLOWING:-</b></p>	
i.	Covering letter/Offer forwarding letter of Tenderer.	
ii.	<p>Duly filled-in 'No Deviation Certificate' as per prescribed format to be placed after document under sl no (i) above.</p> <p><b>Note:</b></p> <p>a. In case of any deviation, the same should be submitted separately for technical &amp; commercial parts, indicating respective clauses of tender against which deviation is taken by bidder. The list of such deviation shall be placed after document under sl no (i) above. It shall be specifically noted that deviation recorded elsewhere shall not be entertained.</p> <p>b. BHEL reserves the right to accept/reject the deviations without assigning any reasons, and BHEL decision is final and binding.</p> <p style="padding-left: 20px;">i). In case of acceptance of the deviations, appropriate loading shall be done by BHEL</p> <p style="padding-left: 20px;">ii). In case of unacceptable deviations, BHEL reserves the right to reject the tender</p>	
iii.	<p>Supporting documents/ annexure/ schedules/ drawing etc as required in line with Pre-Qualification criteria.</p> <p>It shall be specifically noted that all documents as per above shall be indexed properly and credential certificates issued by clients shall distinctly bear the name of organization, contact ph no, FAX no, etc.</p>	
iv.	All Amendments/Correspondences/Corrigenda/Clarifications/Changes/ Errata etc pertinent to this NIT.	
v.	Integrity Pact Agreement (Duly signed by the authorized signatory)	If applicable
vi.	Duly filled-in annexures, formats etc as required under this Tender Specification/NIT	
vii.	Notice inviting Tender (NIT)	
viii.	Volume – I A : <u>Technical</u> Conditions of Contract (TCC) consisting of Scope of work, Technical Specification, Drawings, Procedures, Bill of Quantities, Terms of payment, etc	
ix.	Volume – I B : Special Conditions of Contract (SCC)	
x.	Volume – I C : General Conditions of Contract (GCC)	
xi.	Volume – I D : Forms & Procedures	
xii.	Volume – II (UNPRICED – without disclosing rates/price, but mentioning only 'QUOTED' or 'UNQUOTED' against each item	
xiii.	Any other details preferred by bidder with proper indexing.	

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

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

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

SPECIAL NOTE : All documents/ annexures 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:

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

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

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

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

- 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 = $P_T$ ie Sum ( $\Sigma$ ) of columns (iii) to (ix)
2	Number of Months for which 'Monthly Performance Evaluation' as per relevant formats	$T_1$	$T_2$	$T_3$	$T_4$	$T_5$	...	$T_N$	Sum ( $\Sigma$ ) of columns (iii) to (ix) = $T_T$

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	should have been done in the 'period of assessment for corresponding similar Package ( as in row 1)								
3	Monthly performance scores for the corresponding period (as in Row 2)	S <sub>1-1</sub> , S <sub>1-2</sub> , S <sub>1-3</sub> , S <sub>1-4</sub> , ... S <sub>1-T1</sub>	S <sub>2-1</sub> , S <sub>2-2</sub> , S <sub>2-3</sub> , S <sub>2-4</sub> , ... S <sub>2-T2</sub>	S <sub>3-1</sub> , S <sub>3-2</sub> , S <sub>3-3</sub> , S <sub>3-4</sub> , ... S <sub>3-T3</sub>	S <sub>4-1</sub> , S <sub>4-2</sub> , S <sub>4-3</sub> , S <sub>4-4</sub> , ... S <sub>4-T4</sub>	S <sub>5-1</sub> , S <sub>5-2</sub> , S <sub>5-3</sub> , S <sub>5-4</sub> , ... S <sub>5-T5</sub>	.. ... ... ... ...	S <sub>N-1</sub> , S <sub>N-2</sub> , S <sub>N-3</sub> , S <sub>N-4</sub> , ... S <sub>N-TN</sub>	-----
4	Sum of Monthly Performance scores of the corresponding Package for the corresponding period (as in row-3)	S <sub>1</sub>	S <sub>2</sub>	S <sub>3</sub>	S <sub>4</sub>	S <sub>5</sub>	...	S <sub>N</sub>	Sum (Σ) of columns (iii) to (ix)  = S <sub>T</sub>

- ii) Calculation of Overall 'Performance Rating' (R<sub>BHEL</sub>) in case 'similar Package/Packages' for the tendered scope ARE NOT AVAILABLE, during the 'Period of Assessment':

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

- 'Period of Assessment.
- 12 months preceding the cut-off month
- 24 months preceding the cut-off month
- 36 months preceding the cut-off month

In case, R<sub>BHEL</sub> cannot be calculated as above, then Bidder shall be treated as 'NEW VENDOR'. Further eligibility and qualification of this bidder shall be as per definition of 'NEW VENDOR' described in 'Explanatory Notes'

- iii) Factor "L" assigned based on Overall Performance Rating (R<sub>BHEL</sub>) at Power Sector Regions.:

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

**III. 'Assessment of Capacity of Bidder':**

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

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

Note:

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

The Bidder shall be considered 'Qualified' as per 'Assessment of Capacity of Bidder' for the subject Tender if  $P \leq P_{Max}$

(where P is calculated as per clause 9.1)

**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** 'R<sub>BHEL</sub>' 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

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structure, wage rules, etc before quoting for this tender. They may also consult this office before submitting their offers, for any clarifications regarding scope of work, facilities available at sites or on terms and conditions.

- 11.0 For any clarification on the tender document, the bidder may seek the same in writing or through e-mail, as per specified format, within the scheduled date for seeking clarification, from the office of the undersigned. BHEL shall not be responsible for receipt of queries after due date of seeking clarification due to postal delay or any other delays. Any clarification / query received after last date for seeking clarification may not be normally entertained by BHEL and no time extension will be given.
- 12.0 BHEL may decide holding of pre-bid discussion [PBD] with all intending bidders as per date indicated in the NIT. The bidder shall ensure participation for the same at the appointed time, date and place as may be decided by BHEL. Bidders shall plan their visit accordingly. The outcome of pre-bid discussion (PBD) shall also form part of tender.
- 13.0 In the event of any conflict between requirement of any clause of this specification/ documents/drawings/data sheets etc or requirements of different codes/standards specified, the same to be brought to the knowledge of BHEL in writing for clarification before due date of seeking clarification (whichever is applicable), otherwise, interpretation by BHEL shall prevail. Any typing error/missing pages/ other clerical errors in the tender documents, noticed must be pointed out before pre-bid meeting/submission of offer, else BHEL's interpretation shall prevail.
- 14.0 Unless specifically mentioned otherwise, bidder's quoted price shall deemed to be in compliance with tender including PBD.
- 15.0 Bidders shall submit Integrity Pact Agreement (Duly signed by authorized signatory who signs in the offer), **if applicable**, along with techno-commercial bid. This pact shall be considered as a preliminary qualification for further participation. **The names and other details of Independent External Monitor (IEM) for the subject tender is as given at point (1) above.**
- 16.0 The Bidder has to satisfy the Pre Qualifying Requirements stipulated for this Tender in order to be qualified. The Price Bids of only those bidders will be opened who will be qualified for the subject job on the basis of satisfying the Pre Qualification Criteria specified in this NIT as per Annexure-I (as applicable), past performance etc. and date of opening of price bids shall be intimated to only such bidders. BHEL reserves the right not to consider offers of parties under HOLD.
- 17.0 In case BHEL decides on a 'Public Opening', the date & time of opening of the sealed PRICE BID shall be intimated to the qualified bidders and in such a case, bidder may depute one authorised representative to witness the price bid opening. BHEL reserves the right to open 'in-camera' the 'PRICE BID' of any or all Unsuccessful/Disqualified bidders under intimation to the respective bidders.
- 18.0 Validity of the offer shall be for **six months** from the latest due date of offer submission (including extension, if any) unless specified otherwise.
- 19.0 BHEL reserves the right to decide the successful bidder on the basis of Reverse Auction process. In such case all qualified bidders will be intimated regarding procedure/ modality for Reverse Auction process prior to Reverse Auction and price will be decided as per the rules for Reverse Auction. .

However, if reverse auction process is unsuccessful as defined in the RA rules/procedures, or for whatsoever reason, then the sealed 'PRICE BIDS' will be opened for deciding the successful bidder.

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BHEL's decision in this regard will be final and binding on bidder.

- 20.0 On submission of offer, further consideration will be subject to compliance to tender & qualifying requirement and customer's acceptance, as applicable.
- 21.0 In case the bidder is an "Indian Agent of Foreign Principals", 'Agency agreement has to be submitted along with Bid, detailing the role of the agent along with the terms of payment for agency commission in INR, along with supporting documents.
- 22.0 The bidders shall not enter into any undisclosed M.O.U. or any understanding amongst themselves with respect to tender.
- 23.0 Consortium Bidding (or Technical Tie up) shall be allowed only if specified in Pre Qualifying Requirement (PQR) criteria, and in such a case the following shall be complied with:
  - 23.1 Prime Bidder and Consortium Partner or partners are required to enter into a consortium agreement with a validity period of six months initially. In case the consortium is awarded the contract, then the Consortium Agreement between the Prime Bidder and Consortium Partner or partners shall be extended till contractual completion period including extension periods if any applicable.
  - 23.2 'Stand alone' bidder cannot become a **'Prime Bidder' or a 'Consortium bidder' or 'Technical Tie up bidder' in a consortium (or Technical Tie up) bidding**. Prime bidder shall neither be a consortium partner to other prime bidder nor take any other consortium partners. However, consortium partner may enter into consortium agreement with other prime bidders. In case of non compliance, consortium bids of such Prime bidders will be rejected.
  - 23.3 Number of partners for a consortium Bidding (or Technical Tie up) shall be as specified in the PQR
  - 23.4 Prime Bidder shall be as specified in the Pre Qualification Requirement, else the bidder who has the major share of work
  - 23.5 In order to be qualified for the tender, Prime Bidder and Consortium partner or partners shall satisfy (i) the Technical 'Pre Qualifying Requirements' specified for the respective package, (ii) "Assessment of Capacity of Bidder" as specified in clause 9.0
  - 23.6 Prime Bidder shall comply with additional 'Technical' criteria of PQR as defined in 'Explanatory Notes for the PQR'
  - 23.7 Prime Bidder shall comply with all other Pre Qualifying criteria for the Tender unless otherwise specified
  - 23.8 In case customer approval is required, then Prime Bidder and Consortium Partner or partners shall have to be individually approved by Customer for being considered for the tender.
  - 23.9 Prime Bidder shall be responsible for the overall execution of the contract
  - 23.10 In case of award of job, Performance shall be evaluated for Prime Bidder and Consortium Partner or partners for their respective scope of work(s) as per prescribed formats

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- 23.11 In case the Consortium partner or partners back out, their SDs shall be encashed by BHEL. In such a case, other consortium partner or partners meeting the PQR have to be engaged by the Prime Bidder, and if not, the respective work will be withdrawn and executed on risk and cost basis of the Prime Bidder. The new consortium partner or partners shall submit fresh SDs as applicable.
- 23.12 In case the prime Bidder withdraws, the whole contract shall be considered cancelled and short closed.
- 23.13 After execution of work, the work experience shall be assigned to the Prime Bidder and the consortium partner or partners for their respective scope of work. After successful execution of two similar works with the same consortium partner or partners under direct orders of BHEL, the Prime Bidder shall be eligible for becoming a 'stand alone' bidder for similar works, subject to certification from BHEL about the active involvement of the Prime Bidder for satisfactory execution of the works.
- 23.14 The consortium partner shall submit SD equivalent to 2% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value. In case there are two consortium partners, then each partner shall submit SD equivalent to 1% of the total contract value in addition to the SD to be submitted by the prime Bidder for the total contract value.
- 23.15 In case of a Technical Tie up, all the clauses applicable for the Consortium partner shall be applicable for the Technical Tie up partner also
- 24.0 The bidder shall submit documents in support of possession of 'Qualifying Requirements' duly self certified and stamped by the authorized signatory, indexed and properly linked in the format for PQR. In case BHEL requires any other documents/proofs, these shall be submitted immediately.
- 25.0 The bidder may have to produce original document for verification if so decided by BHEL.
- 26.0 Order of Precedence  
In the event of any ambiguity or conflict between the Tender Documents, the order of precedence shall be in the order below:
- a. Amendments/Clarifications/Corrigenda/Errata etc issued in respect of the tender documents by BHEL
  - b. Notice Inviting Tender (NIT)
  - c. Price Bid
  - d. Technical Conditions of Contract (TCC)—Volume-1A
  - e. Special Conditions of Contract (SCC)—Volume-1B
  - f. General Conditions of Contract (GCC)—Volume-1C
  - g. Forms and Procedures —Volume-1D
  - h. Drawings & Specifications for welding & sfety- Vol-I E

for BHARAT HEAVY ELECTRICALS LTD

AGM (Purchase)

**Enclosure**

01. Annexure-1: Pre Qualifying criteria.
  02. Annexure-2: Check List .
  03. Annexure – 3- Important Information
- Other Tender documents as per this NIT.

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**ANNEXURE - 1**

**PRE QUALIFYING CRITERIA**

JOB	Assembly , erection , levelling and alignment of loose component , welding adjustment pump shaft , greasing component (as required) of vertical turbine pump - 24 set and CW Pump -5 set 2x250 MW TPS (UNIT Nos. 3 & 4)ATSIKKA THERMAL POWER STATION GUJARAT STATE ELECTRICITY CORPORATION LIMITEDDISTT- JAMNAGAR, GUJARAT
TENDER NO	BHE/PW/PUR/SKT-PIN/1177

SL NO	PRE QUALIFICATION CRITERIA	Bidders claim in respect of fulfilling the PQR Criteria	
		Name and Description of qualifying criteria	Page no of supporting document
A	Submission of Integrity Pact duly signed	NOT APPLICABLE	
B	<b>Assessment of Capacity of Bidder to execute the work as per sl no 9 of NIT</b>	<b>APPLICABLE</b>	
C	<p><b><u>Technical</u></b></p> <p><b>B.1</b> Executed Erection Testing &amp; Commissioning (E T &amp; C) of One STG/GTG of any rating <b>OR</b></p> <p><b>B.2</b> Executed E T &amp; C of Atleast One Boiler (With Rotating Machines upto synchronization) of 30 MW or higher. <b>OR</b></p> <p><b>B.3</b> . Executed One job of E &amp; C of Pumps in power plant of Value Rs.49Lakhs or above <b>OR</b></p> <p><b>B.4</b> Executed Two jobs of E &amp; C of Pumps in power plant each of Value Rs.30.5 Lakhs or above <b>OR</b></p> <p><b>B.5</b> Executed Three jobs of E &amp; C of Pumps in power plant each of Value Rs.24.5 Lakhs or above.</p>		
C-1	<p><b><u>Financial TURNOVER</u></b></p> <p>Bidders must have achieved an average annual financial turnover (Audited) of Rs. 18.5 Lakhs or more over last three Financial Years (FY) i.e. 2010-2011, 2011-2012, 2012-2013 or for 2009-2010, 2010-2011, 2011-12 if Annual Accounts for FY 2012-2013 are not audited.</p>	APPLICABLE	
C-2	<p><b><u>NETWORTH</u></b> (only in case of Companies)</p> <p>Net worth of the Bidder based on the latest Audited Accounts as furnished for 'C-1' above should be positive</p>	APPLICABLE	

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

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6. Time period for achievement of the 'Technical' criteria of PQR (as in 'B' above) will be the last 7 years ending on the 'latest date' of Bid submission
7. 'EXECUTED' means the Vendor should have achieved the criteria specified in the Technical criteria of PQR (as in 'B' above) even if the Contract has not been completed or closed
8. Unless otherwise specified, for the purpose of 'Technical' criteria of PQR ( as in 'B' above), the word 'EXECUTED' means:
  1. "BOILER LIGHT UP" in respect of Boiler & Aux and ESP
  2. "SYNCHRONISATION" in respect of STG/GTG and 'SPINNING' in case of HTG
  3. ~~"STEAM BLOWING COMPLETION" in respect of at least Main Steam Line of Power Cycle Piping~~
  4. ~~"HYDRAULIC TEST" of the system in respect of Structures, Pressure parts/IBR Piping~~
  5. ~~"CHARGING" in respect of power Transformers, Bus ducts, HT/LT switchgears~~
  6. ~~"Completion of RCC Shell and liner (steel or brick as per tendered scope) up to the HEIGHT specified using slip form" in case of RCC Chimney.~~
  7. ~~Achievement of physical Quantities as per respective PQRs in respect of Civil & Structures and Piling Works~~
  8. ~~"Readiness for coal Filling" in respect of Bunker Structure Work.~~
9. Boiler means HRSG or WHRB or any other types of Steam Generator
10. ~~Critical/Power Cycle piping means Main Steam, Hot Reheat, Cold Reheat, HP Bypass, LP Bypass lines~~
11. For the purpose of evaluation of the PQR, one MW shall be considered equivalent to 3.5TPH where ever rating of HRSG/BOILER is mentioned in MW. Similarly, where ever rating of Gas Turbine is mentioned in terms of Frame size, ISO rating in terms of MW shall be considered for evaluation.
12. ~~In case the experience/POAWO certificate enclosed by bidders do not have separate break up prices for the E&C portion of Electrical and CI Works, (i.e. the certificates enclosed are for composite order for supply and erection of Electrical & CI and other works if any), then value of Erection and Commissioning for the Electrical & CI portion shall be considered as 15% of the supply & erection of Electrical & CI, unless otherwise specifically indicated in the PQR.~~
13. ~~Scope for capital overhaul of STG shall cover Bearing Inspection work and overhauling of all cylinders of the Turbine unless otherwise specifically indicated in the PQR.~~
14. In case the tendered scope is not a Pulverised Fuel Boiler, experience of Oil/Gas Fired Boilers also can be considered unless otherwise specifically indicated in the PQR

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

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**CHECK LIST (ANNEXURE – 2)**

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

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

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

DATE :

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

**ANNEXURE 3:**  
**IMPORTANT INFORMATION**

1. The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site ( [www.bhel.com](http://www.bhel.com) ---> Tender Notification -> List of Banned Firms )
2. Price Variation Compensation & Overrun Compensation shall not be applicable/Payable.
3. All Statutory Requirements as applicable for this project shall be complied with.
  - a. Please take note of following Revised Tender Clauses:
    - i. Notice Inviting Tender: SI No 9
    - ii. General conditions of Contract: Clause No 1.15.13 (New), Clause No 2.8.3, 2.8.4 and 2.8.5
4. The scope of works under this tender specification consists of 2 packages viz. E,T & C of CW pumps and E,T&C of Vertical Turbine Pumps with separate Contract Periods.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

BHARAT HEAVY ELECTRICALS LIMITED



# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter - I: Project Information

SI No	DESCRIPTION	Chapter	No. OF PAGES
<b>Volume-IA</b>	<b>Part-I: Contract specific details</b>		
1	Project Information	Chapter-I	1
2	Scope of works(E,T&C of CW Pumps)	Chapter-II.A	5
	Scope of works(E,T&C of Vertical Turbine Pumps)	Chapter-II.B	5
3	Facilities in the scope of Contractor/BHEL (Scope Matrix)	Chapter-III	7
4	T&Ps and MMEs to be deployed by Contractor	Chapter-IV	2
5	T&Ps and MMEs to be deployed by BHEL on sharing basis	Chapter-V	1
6	Time Schedule	Chapter-VI	2
7	Terms of Payment	Chapter-VII	2
8	Taxes and other Duties	Chapter-VIII	3
	Annexures		
	Drawings	Annexure I	1
	Estimated Weights of Various Systems in Scope of Work	Annexure II	2
<b>Volume-IA</b>	<b>Part-II : Technical Specifications</b>		
1	General	Chapter-I	5
2	Welding, Radiography, NDT, PWHT	Chapter-II	2
3	Painting	Chapter-IV	1
4	Testing, Pre-Commissioning, Commissioning	Chapter-V	1
5	Preservation & Protection of Components	Chapter-VI	2

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter - I: Project Information

	<b>Project Information</b>										
<b>1.1</b>	<b>INTROUCTION</b> <p>Sikka Thermal Power Station is presently having two sets (units) of 120 MW units in operating condition. The plant owner M/s Gujarat State Electricity Corporation Limited (GSECL) has undertaken expansion of this power plant by installing two units of 250 MW each (name plate rating) in the same premises. Though both the new units are of 250 MW name plate rating, they are guaranteed to produce an output of 270 MW each.</p> <p>The Bidder shall acquaint himself by a visit to the site, if felt necessary, with the conditions prevailing at site before submission of the bid. The information given here in under is for general guidance and shall not be contractually binding on BHEL/ Owner. All relevant site data/information as may be necessary shall have to be obtained /collected by the Bidder.</p>										
<b>1.2</b>	<b><u>LOCATION AND APPROACH</u></b> <p>In Sikka, Jamnagar district, Latitude 22<sup>o</sup> 26' N &amp; Longitude 69<sup>o</sup> 49' E. The site is surrounded by villages Mungai, Sikka, Gagva &amp; Nanikkhavri of Jamnagar district of Gujarat state.</p> <p><b><u>Access by Road:</u></b> It is connected to State Highway (SH-25) by a 5 km long road through Sikka village.</p> <p><b><u>Access by Railways:</u></b> Jamnagar – Okha broad-gauge section is passing at a distance of 12 km form Sikka.</p> <p><b><u>Nearest Airport:</u></b> Jamnagar</p> <p><b><u>Nearest Seaport:</u></b> Okha &amp; Navalakhinare located 140 Km &amp; 130 Km respectively from the site.</p>										
<b>1.3</b>	<b><u>Other Salient Information:</u></b> <table><tbody><tr><td>1. Owner</td><td>M/s GSECL</td></tr><tr><td>2. Owner's Consultant</td><td>M/s TCE, Bangalore</td></tr><tr><td>3. Project Title</td><td>2x250 MW Sikka TPS Extension Units # 3 &amp; 4</td></tr><tr><td>4. Location</td><td>12 km from Sikka, District – Jamnagar, Gujarat</td></tr><tr><td>5. Nearest Railway Stn.</td><td>Jamnagar</td></tr></tbody></table>	1. Owner	M/s GSECL	2. Owner's Consultant	M/s TCE, Bangalore	3. Project Title	2x250 MW Sikka TPS Extension Units # 3 & 4	4. Location	12 km from Sikka, District – Jamnagar, Gujarat	5. Nearest Railway Stn.	Jamnagar
1. Owner	M/s GSECL										
2. Owner's Consultant	M/s TCE, Bangalore										
3. Project Title	2x250 MW Sikka TPS Extension Units # 3 & 4										
4. Location	12 km from Sikka, District – Jamnagar, Gujarat										
5. Nearest Railway Stn.	Jamnagar										
<b>1.4</b>	<b>CLIMATIC CONDITIONS</b>										

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter - I: Project Information**

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	<p>1.Ambient Air Temperature</p> <p style="margin-left: 40px;">a. Maximum                      42 Deg. C</p> <p style="margin-left: 40px;">b. Minimum                      8 Deg. C</p> <p>2. Relative Humidity</p> <p style="margin-left: 40px;">c. Maximum                      100%</p> <p style="margin-left: 40px;">d. Minimum                      21%</p> <p>3.Rainfall</p> <p style="margin-left: 40px;">e. Average annual              650 mm</p> <p style="margin-left: 40px;">f. Maximum                      900 mm</p> <p style="margin-left: 40px;">g. Minimum                      400 mm</p> <p>4.Wind Data</p> <p style="margin-left: 40px;">h. Basic wind speed at 10m height      50 m/sec</p> <p style="margin-left: 40px;">i. Wind pressure                      As per IS: 875 Part III</p> <p>5.Seismic Zone                                      Zone IV as per IS: 1893-2002</p>
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# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II.A : Scope of works(E,T&C of CW Pumps)

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### 2.0 INTENT OF SPECIFICATION

**BHEL- PSWR is executing 2x250 MW Sikka TPS Extension Unit 3 & 4 EPC Project at Sikka for M/s GSECL, Sikka. As a part of BHEL scope, the vertical type Cooling Water Pump with Motor (5 sets) are to be installed in Cooling Water Pump House. The vertical type CW Pumps foundations are ready for taking up erection work.**

### 2.1 SCOPE OF WORK

- 2.1.1 This specification includes but not limited to Receipt of materials from BHEL Store / storage yards; Handling at BHEL Store / storage yards / site of works; Transportation between BHEL Store / storage yards and site of works; preparation of foundations; assembly, blue matching, erection and alignment of loose components of the vertical type CW Pumps & Motors, welding of thrust block assembly with embedded plate with E7018 electrodes; fabrication, erection & alignment of stainless steel pipes/tubes up to Dia. 60.3 for gland sealing/pump drains etc. which are supplied along with CW pumps and its welding by GTAW process with ER-347 / ER-309 and NDT of joints; grouting of Pump foundation bolts, Base plates, thrust block assembly and anchoring bolts etc. with non-shrink (free flow) grout materials Conbextra GP-2 cement; testing; trial run, commissioning and handing over at 2x250 MW GSECL Sikka TPS Extn Unit 3&4 Project at Sikka with customer satisfaction as per detailed/erection drawings which will be made available at the time of erection.
- 2.1.2 Bidder to note that certain items envisaged presently in BOQ may get deleted / added some few items based on the actual site condition. Hence payment shall be made as per the unit rate quoted by the vendor. The variation in the BOQ may vary up to +/- 20% and price shall remain firm.
- 2.1.3 If any damage (before handing over to BHEL) occurs during handling and due to negligence of the vendor, it is the responsibility of the vendor to repair / do the required repair to meet the assured quality at free of cost.
- 2.1.4 As per the attached BOQ, and “**GENERAL ARRANGEMENT & FOUNDATION DETAILS OF COOLING WATER PUMP PLUS MOTOR**” drawing No. 1-182-005-6438 / Rev. 01; same have to be installed at 2x250 MW GSECL Sikka TPS Extn Unit 3&4 in CW Pump House. 2x250 MW GSECL Sikka TPS Extn Unit 3&4 Project is around 35kms from the Jamnagar. All the CW Pumps and Motors materials to be issued from the BHEL / Customer Stores / storage yards and shifted to CW Pump House. Transportation of all the Materials of CW Pumps and Motors related items/components will be in the scope of bidder only. All equipment, MME, for the installation, blue matching, leveling and alignment of Pumps & Motors, welding Generator, Argon welding set, Argon gas, scaffolding pipes and related T & P, welding & other consumables as required, non-shrink (free flow) grout materials Conbextra GP-2 cement required for said works at site shall be included in the base price and bidder at no point of time is eligible to raise any extra claim.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II.A : Scope of works(E,T&C of CW Pumps)

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### 2.2 SCOPE OF SERVICES

- 2.2.1 Receipt of materials (for 5 sets of CW Pumps & Motors) from BHEL's/Customer's Store/storage yards; handling at BHEL's/Customer's Store / storage yards / site of works; Transportation between BHEL's/Customer's Store / storage yards and site of works. **One of the BHEL's storage yard is situated outside of the Project Boundary at about 3KM distance from the CW Pump House for which required Permission / Gate Pass is to be prepared for taking out the Crane & Trailer for transportation of materials from there.**
- 2.2.2 Preparation of foundations (chipping/leveling of concrete up to twenty five mm); drilling, tapping, grinding, cleaning, pre-assembly/trial assembly, dismantling of certain items/equipment/components for checking & cleaning, blue matching, erection, leveling and alignment of loose components of 5 sets of the vertical type CW Pumps & Motors; fabrication, erection & alignment of stainless steel pipes/tubes up to Dia. 60.3 for gland sealing/pump drains etc. which are supplied along with CW pumps and its welding by GTAW process with ER-347 / ER-309 and NDT (radiography & LPI / DPT) of joints; fixing & welding of thrust block assemblies and anchoring bolts, grouting of Pump foundation bolts, Base plates, thrust block assembly and anchoring bolts etc. with non-shrink grout materials Conbextra GP-2; testing; trial run, commissioning and handing over to customer.
- 2.2.3 Arrangement of T&P, special tools and tackles for handling, complete planning, monitoring of work, site supervision, testing and trial run of the vertical type CW Pump /Motor or Pump with Motor (5 sets). **The Weight of the vertical type Cooling Water Pump (approximate weight is 28 MT each) and Motor (capacity is 2200kW / approximate weight is 25MT each). Total estimated weight of 5 sets is 265.00 MT.**
- 2.2.4 Any scaffolding, temporary platforms, ladders etc. that may be required for the purpose of the vertical type CW Pumps/Motors erection shall be arranged by the vendor for the execution of work. All miscellaneous steel, if required, necessary for the vertical type CW Pumps/Motors erection and commissioning is to be arranged by the Contractor / bidder.
- 2.2.5 Arranging of Tools; calibrated MME [(Measuring and Monitoring Equipment) traceability to National and International standards] like High Precision Spirit Level, Vernier Calipers, inside/outside Micrometers, Dial gauges, Measuring Tapes, Surface plate, etc. etc. required for CW Pumps & Motors erection & alignment; required capacity of slings & d-shackles; Trailer with prime mover; crane for loading, unloading, shifting of materials shall be in the scope of the Contractor / bidder.
- 2.2.6 For grouting of the CW Pump foundation bolts, Base plates, thrust block assembly and anchoring bolts etc. with fresh non-shrink (free flow) grout materials Conbextra GP-2

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II.A : Scope of works(E,T&C of CW Pumps)

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cement including form work & shuttering materials is to be arranged by the Contractor / bidder at his cost. Batch certificate of Conbextra GP-2 cement should be submitted well in advance for verification and acceptance of the same for use.

- 2.2.7 During installation of CW Pumps, Pump suction length is to be adjusted as per the sump depth available in CW Pump House. Same is to be carried out by Contractor / bidder as a part of work without any additional charges.
- 2.2.8 All electrical Motors have to be tested for IR & PI values prior to the trial run. When required, dry out of Motor may have to be carried out by using external heating source (Halogen lamps). Providing of manpower assistance for dismantling of cable from Motor terminal Box for dry out of motor by halogen lamps is part of the work. Arranging of drying out of motor by Halogen lamps and arranging of Halogen lamps are in the scope of Contractor / bidder. No separate payment is envisaged for the same. BHEL will provide the insulation tester.
- 2.2.9 The contractor/bidder shall have total responsibility for all equipment and materials in his custody at contractor's stores, loose, semi-assembled, assembled or erected by him at site. He shall effectively protect the finished works from the action of weather and from damages or defacement and shall also cover the finished parts immediately on completion of work as per BHEL's Engineers instructions. The machined/finished surfaces should be greased and covered.
- 2.2.10 Required manpower assistances are to be provided during the course of commissioning with required hand tools.
- 2.2.11 The list of various sizes of Allen Keys and spanners required for erection of CW Pumps & Motors are to be arranged by bidder. In addition to these Allen Keys and Ring spanners / D-spanners if other sizes are required, the same are also to be arranged by the bidders.
- Allen keys : M8 & M12
  - Ring spanners / D-spanners : M10, M12, M20, M24, M30, M36
  - Torque wrenches of required capacity.
- 2.2.12 The list of consumables, T&P, MME etc. etc. mentioned in various clauses are not intended to be exhaustive. Contractor / bidder shall arrange at his cost all approved consumables, Conbextra GP-2 cement, T&P, MME etc. etc. required though not listed specifically.
- 2.2.13 Radiography of minimum four joints (sizes up to Dia. 60.3x5.54mm) per each Pump set shall be carried out. Arrangement of Radiography including source for taking radiography of joints shall be arranged by the bidder/contractor as part of work. No separate payment is envisaged for the same.
- 2.2.14 All welders shall be tested and approved by BHEL / Customer engineers before actually they are engaged on work.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II.A : Scope of works(E,T&C of CW Pumps)

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2.2.15 Welding of necessary instrumentations to be provided for CW Pumps are covered within the scope of this specification.

2.2.16 The contractor/bidder shall at his cost perform any services, test etc. although not specified but nevertheless required for the completion of work. Access to site for inspection by BHEL/Customer engineers shall be made available by contractor all times.

### 2.3 SAFETY:

Contractor/Bidder has to ensure safety in all respects for the materials and manpower, while executing the job as per relevant local Laws / Codes & Regulations. Contractor shall comply with HSE requirements of BHEL. Security of all tools, tackles, equipment, required infrastructure facilities are to be done by Contractor / bidder.

### 2.4 Contractor/Bidder responsibility:

2.4.1 Since the erection work is to be carried out at 2x250 MW GSECL Sikka TPS Extn Unit 3&4, Gate-pass for the Manpower/T&P/ Transporting Vehicle etc. etc. are to be made in advance by the Contractor / bidder. Daily erection activities should not be delayed due to non-availability of Entry Gate Pass for Manpower/ T&P/ Transporting Vehicle etc.

2.4.2 Transporting Vehicles required for the movement of the manpower, T&P, Pumps & Motors & its components, and any other materials required for completion of work within the plant premises and outside plant premises will be in bidder's/contractor's scope and no extra claim will be entertained at any point of time for the conveyance / transportation charges.

2.4.3 Contractor / bidder shall provide the complete operating crew like EOT operator and helpers for handling trailing cable for EOT crane.

2.4.4 Application of preservative paint as required to be carried out by the contractor/bidder. Required primer, paint will be supplied by BHEL free of cost.

### 2.5 Other terms and conditions

(1) Contractor/bidder should arrange proper and adequate Insurance cover for all the employees and workmen deputed/deployed by him at the site on the work. It is the sole responsibility of the contractor/bidder to insure his materials, equipment, workmen etc. against accidents, and injury while at work and to pay compensation, if any, to workmen as per Workmen's compensation Act. The work will be carried out in a protected area and all the rules and regulations of the client / BHEL in the area of project which are in force from time to time will have to be followed by the contractor / bidder.

(2) Necessary Labour license should be obtained based on the Form-V issued by the principal employer as required.

## TECHNICAL CONDITIONS OF CONTRACT (TCC)

### Chapter – II.A : Scope of works(E,T&C of CW Pumps)

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- (3) Proper records are required to be maintained by the contractor on the material drawn from the stores (including other materials/items issued from customer M/s GSECL, if any).
- (4) Water and Electricity shall be provided free of cost for construction work only from the nearest available point. Required pipes & fittings, cables and others accessories as required shall be arranged by the contractor/bidder for drawing of water and electricity. Also 30.00 MT capacity EOT crane will be given free of charge in the Pump House on sharing basis for erection of CW Pumps & Motors.
- (5) Crane will be given free of charge if weight of the individual component is more than 14MT for loading & unloading at BHEL's/Customer's storage yards and at work site .

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II.B : Scope of works(E,T&C of V. Turbine Pumps)

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### 2.6.0 INTENT OF SPECIFICATION

BHEL- PSWR is executing 2x250 MW Sikka TPS Extension Unit 3 & 4 EPC Project at Sikka for M/s GSECL, Sikka. As a part of BHEL scope, the **VERTICAL TURBINE PUMPS WITH MOTORS (24 SETS)** are to be installed in various locations. The Vertical Turbine Pumps foundations are ready for taking up erection work .

### 2.6.1 SCOPE OF WORK

This specification includes but not limited to Receipt of materials from BHEL Store / storage yards; Handling at BHEL Store / storage yards / site of works; Transportation between BHEL Store / storage yards and site of works; preparation of foundations; blue matching components/equipment, fabrication of packer plates from raw materials, cutting of required shims, drilling, tapping, assembly, trial assembly , erection, leveling and alignment of loose components, welding, adjustment pump shafts, greasing components (as required) of Vertical Turbine **Pump with Motor – 24 sets as per the details mentioned in Annexure-A**); grouting of Vertical Turbine Pumps foundation bolts & Sole plates with non-shrink (free flow) grout materials Conbextra GP-2 cement; testing; trial run, commissioning and handing over at 2x250 MW GSECL Sikka TPS Extn Unit 3&4 Project at Sikka with customer satisfaction as per detailed/erection drawings which will be made available at the time of erection.

2.6.2 Also bidder to note that certain items envisaged presently in BOQ may get deleted / added some few items based on the actual site condition. Hence payment shall be made as per the unit rate quoted by the vendor. The variation in the BOQ may vary up to +/- **10%** and price shall remain firm.

2.6.3 If any damage (before handing over to BHEL) occurs during handling and due to negligence of the vendor, it is the responsibility of the vendor to repair / do the required repair to meet the assured quality at free of cost.

2.6.4 As per the attached BOQ, and “**GENERAL ARRANGEMENT DRAWINGS OF VERTICAL TURBINE PUMP PLUS MOTOR as mentioned in Clause 2.2**”; same have to be installed at 2x250 MW GSECL Sikka TPS Extn Unit 3&4 in **various locations of Vertical Turbine Pumps inside the Plant Premises**. 2x250 MW GSECL Sikka TPS Extn Unit 3&4 Project is around 35kms from the Jamnagar. All the Vertical Turbine Pumps and Motors materials are to be issued from the BHEL / Customer Stores / storage yards and shifted to **various locations of Vertical Turbine Pumps inside the Plant Premises**. Transportation of all the Materials of **Vertical Turbine Pumps and Motors** related items/components will be in the scope of bidder only. All equipment, MME, for the installation, leveling and alignment of **Vertical Turbine Pumps & Motors**, welding Generator with required accessories, gas cutting set, scaffolding pipes and related T & P, welding & other consumables as required, non-shrink (free flow) grout materials Conbextra GP-2 cement required for said works at site shall be included in the base price and bidder at no point of time is eligible to raise any extra claim.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II.B : Scope of works(E,T&C of V. Turbine Pumps)

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### 2.7 SCOPE OF SERVICES

- 2.7.1 Receipt of materials (for 24 sets of Vertical Turbine Pumps & Motors) from BHEL's/Customer's Store/storage yards; handling at BHEL's/Customer's Store / storage yards / site of works; Transportation between BHEL's/Customer's Store / storage yards and site of works.
- 2.7.2 Preparation of foundations (chipping/leveling of concrete up to twenty five mm); fabrication of packer plates from raw materials, cutting of required shims, drilling, tapping, grinding, cleaning, blue matching, pre-assembly/trial assembly, dismantling of certain items/equipment/components for checking & cleaning, blue matching, erection, leveling and alignment of loose components of 24 sets of the Vertical Turbine Pumps & Motors; grouting of Pump foundation bolts, Sole / Base plates, etc. with non-shrink grout materials Conbextra GP-2; testing; trial run, commissioning and handing over to customer.
- 2.7.3 Arrangement of T&P, special tools and tackles for handling, complete planning, monitoring of work, site supervision, testing and trial run of the Vertical Turbine Pump /Motor or Pump with Motor (24 sets). For details of weight of the Vertical Turbine Pump and Motor refer enclosed sheet **Annexure-A**. Total estimated Weight of the Vertical Turbine Pumps with Motors of 22 sets is 77.720 MT.
- 2.7.4 Any scaffolding, temporary platforms, ladders etc. that may be required for the purpose of the Vertical Turbine Pumps/Motors erection shall be arranged by the vendor for the execution of work. All miscellaneous steel, if required, necessary for the Vertical Turbine Pumps/Motors erection and commissioning are to be arranged by the Contractor / bidder.
- 2.7.5 Arranging of Tools; calibrated MME [(Measuring and Monitoring Equipment) traceability to National and International standards] like High Precision Spirit Level, Vernier Calipers, Filler Gages, inside/outside Micrometers, Dial gauges, Measuring Tapes, Surface plate, etc. etc. required for the Vertical Turbine Pumps & Motors erection & alignment; required capacity of slings & d-shackles; Trailer with prime mover; crane for erection, loading, unloading, shifting of materials shall be in the scope of the Contractor / bidder
- 2.7.6 For grouting of the Vertical Turbine Pumps foundation bolts and Base / Sole plates etc. ( as required for completion of erection of Vertical Turbine Pumps ) with fresh non-shrink (free flow) grout materials Conbextra GP-2 cement including form work & shuttering materials is to be arranged by the Contractor / bidder at his cost. Batch certificate of Conbextra GP-2 cement should be submitted well in advance for verification and acceptance of the same for use.
- 2.7.7 During installation of the Vertical Turbine Pumps, Pump suction length is to be adjusted as per the sump depth available in each Vertical Turbine Pump pit.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II.B : Scope of works(E,T&C of V. Turbine Pumps)

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Same is to be carried out by Contractor / bidder as a part of work without any additional charges.

- 2.7.8 All electrical Motors have to be tested for IR & PI values prior to the trial run. When required, dry out of Motor may have to be carried out by using external heating source (Halogen lamps). Providing of manpower assistance for dismantling of cable from Motor terminal Box for dry out of motor by halogen lamps is part of the work. Arranging of drying out of motor by Halogen lamps and arranging of Halogen lamps are in the scope of Contractor / bidder. No separate payment is envisaged for the same. BHEL will provide the insulation tester.
- 2.7.9 The contractor/bidder shall have total responsibility for all equipment and materials in his custody at contractor's stores, loose, semi-assembled, assembled or erected by him at site. He shall effectively protect the finished works from the action of weather and from damages or defacement and shall also cover the finished parts immediately on completion of work as per BHEL's Engineers instructions. The machined/finished surfaces should be greased and covered.
- 2.7.10 Required manpower assistances are to be provided during the course of commissioning with required hand tools.
- 2.7.11 Arranging of required sizes of Allen Keys and Ring spanners / D-spanners spanners required for erection of the Vertical Turbine Pumps & Motors are to be arranged by bidder. Torque wrenches of required capacity are also to be arranged by the bidders.
- 2.7.12 The list of consumables, T&P, MME etc. etc. mentioned in various clauses are not intended to be exhaustive. Contractor / bidder shall arrange at his cost all approved consumables, Conbextra GP-2 cement, T&P, MME etc. etc. required though not listed specifically.
- 2.7.13 All welders shall be tested and approved by BHEL / Customer engineers before actually they are engaged on work.
- 2.7.14 Welding of necessary instrumentations to be provided for the Vertical Turbine Pumps are covered within the scope of this specification.
- 2.7.15 The contractor/bidder shall at his cost perform any services, test etc. although not specified but nevertheless required for the completion of work. Access to site for inspection by BHEL/Customer engineers shall be made available by contractor all times

## 2.8 SAFETY:

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – II.B : Scope of works(E,T&C of V. Turbine Pumps)

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Contractor/Bidder has to ensure safety in all respects for the materials and manpower, while executing the job as per relevant local Laws / Codes & Regulations. Contractor shall comply with HSE requirements of BHEL. Security of all tools, tackles, equipment, required infrastructure facilities are to be done by Contractor / bidder.

Contractor/Bidder responsibility:

- 2.8.1 Since the erection work is to be carried out at 2x250 MW GSECL Sikka TPS Extn Unit 3&4, Gate-pass for the Manpower/T&P/ Transporting Vehicle etc. etc. are to be made in advance by the Contractor / bidder. Daily erection activities should not be delayed due to non-availability of Entry Gate Pass for Manpower/ T&P/ Transporting Vehicle etc.
  - 2.8.2 Transporting Vehicles required for the movement of the manpower, T&P, Vertical Turbine Pumps & Motors & its components, and any other materials required for completion of work within the plant premises and outside plant premises will be in bidder's/contractor's scope and no extra claim will be entertained at any point of time for the conveyance / transportation charges
  - 2.8.3 Contractor / bidder shall arrange required slings, steel materials etc. required for erection of Vertical Turbine Pumps and Motors.
  - 2.8.4 Application of preservative paint as required, and final painting of Vertical Turbine Pumps and Motors are to be carried out by the contractor/bidder. Required primer, paint will be supplied by BHEL free of cost. Contractor / bidder shall arrange the required paint brush at his cost.
- 2.9 Other terms and conditions
- (4) Contractor/bidder should arrange proper and adequate Insurance cover for all the employees and workmen deputed/deployed by him at the site on the work. It is the sole responsibility of the contractor/bidder to insure his materials, equipment, workmen etc. against accidents, and injury while at work and to pay compensation, if any, to workmen as per Workmen's compensation Act. The work will be carried out in a protected area and all the rules and regulations of the client / BHEL in the area of project which are in force from time to time will have to be followed by the contractor / bidder.
  - (5) Necessary Labor license should be obtained based on the Form-V issued by the principal employer as required.
  - (6) Proper records are required to be maintained by the contractor on the material drawn from the stores (including other materials/items issued from customer M/s GSECL, if any).

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter – II.B : Scope of works(E,T&C of V. Turbine Pumps)**

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- (4) Water and Electricity shall be provided free of cost for construction work only from the nearest available point. Required pipes & fittings, cables and others accessories as required shall be arranged by the contractor/bidder for drawing of water and electricity.

All other terms and conditions applicable to this tender shall be as per BHEL contract rules.

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

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

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

Sl.No	Description <b>PART I</b>	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.2.0	<b>ELECTRICITY</b>			
3.2.1	<b>Electricity For construction purposes 3 Phase of Voltage 415/440 V</b>			FREE
a	Single point source	Yes		at one point near the erection site
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.2	<b>Electricity for the office, stores, canteen etc of the bidder</b>			FREE
a	Single point source	Yes		
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.2.3	<b>Electricity for living accommodation of the bidder's staff, engineers, supervisors etc</b>		Yes	Bidder to make his own arrangement
a	Single point source		Yes	

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

Sl.No	Description <b>PART I</b>	Scope / to be taken care by		Remarks
		BHEL	Bidder	
b	Further distribution including all materials, Energy Meter, Protection devices and its service		Yes	
c	Duties and deposits including statutory clearances if applicable		Yes	
3.3.0	<b>WATER SUPPLY</b>			
3.3.1	<b>For construction purposes: (to be specified whether chargeable or free)</b>			FREE
a	Making the water available at single point	Yes		
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	.
3.3.2	<b><u>Water supply for bidder's office, stores, canteen etc</u></b>			FREE
a	Making the water available at single point	Yes		
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.3.3	<b><u>Water supply for Living Purpose</u></b>		<b>yes</b>	Bidder to make his own arrangement

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

Sl.No	Description <b>PART I</b>	Scope / to be taken care by		Remarks
		BHEL	Bidder	
a	Making the water available at single point		Yes	
b	Further distribution as per the requirement of work including supply of materials and execution		Yes	
3.4.0	<b>LIGHTING</b>			
a	For construction work (supply of all the necessary materials) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	
b	For construction work (execution of the lighting work/ arrangements) 1. At office/storage area 2. At the preassembly area 3. At the construction site /area		Yes	
c	Providing the necessary consumables like bulbs, switches, etc during the course of project work		Yes	
d	Lighting for the living purposes of the bidder at the colony / quarters		Yes	
3.5.0	<b>COMMUNICATION FACILITIES FOR SITE OPERATIONS OF THE BIDDER</b>			
a	Telephone, fax, internet, intranet, e-mail etc		Yes	

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

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Sl.No	Description <b>PART I</b>	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.6.0	<b>COMPRESSED AIR wherever required for the work</b>		Yes	
3.7.0	<b>Demobilization of all the above facilities</b>		<b>YES</b>	
3.8.0	<b>TRANSPORTATION</b>			
a	For site personnel of the bidder		Yes	
B	For bidder's equipments and consumables (T&P, Consumables etc)		Yes	

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

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SI.No	Description <b>PART II</b> <b>3.9.0 ERECTION FACILITIES</b>	Scope / to be taken care by		Remarks
		BHEL	Bidder	
3.9.1	Engineering works for construction:			
a	Providing the erection/constructions drawings for all the equipments covered under this scope	Yes		<b>For Details PI refer Chapter-II-</b>
b	Drawings for construction methods	Yes	Yes	In consultation with BHEL
c	As-built drawings – where ever deviations observed and executed and also based on the decisions taken at site- example – routing of small bore pipes	Yes		
d	Shipping lists etc for reference and planning the activities	Yes		
e	Preparation of site erection schedules and other input requirements		Yes	In consultation with BHEL
f	Review of performance and revision of site erection schedules in order to achieve the end dates and other commitments	Yes	Yes	In consultation with BHEL
g	Weekly erection schedules based on SI No. e		Yes	In consultation with BHEL

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

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Sl.No	Description <b>PART II</b> <b>3.9.0 ERECTION FACILITIES</b>	Scope / to be taken care by		Remarks
		BHEL	Bidder	
h	Daily erection / work plan based on Sl No. g		Yes	In consultation with BHEL
i	Periodic visit of the senior official of the bidder to site to review the progress so that works are completed as per schedule. It is suggested this review by the senior official of the bidder should be done once in every two months.		Yes	
j	Preparation of preassembly bay		Yes	
k	Laying of racks for gantry crane if provided by BHEL or brought by the contractor/bidder himself		Yes	
L	Arranging the materials required for preassembly		Yes	

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

**4.0 : TOOLS & PLANTS TO BE DEPLOYED BY CONTRACTOR**

SI No.	DESCRIPTION	T&Ps to be provided for CW Pump Pkg - (for 6 months)	T&Ps to be provided for VERT. Turbine Pump Pkg – (for 4 months)
		QUANTITY	QUANTITY
1	Welding Generator / Rectifier with GTAW welding facility	Minimum 1 No.	Minimum 1 No.
2	Argon Set for Welding set for GTAW	Minimum 1 No.	Minimum 1 No.
3	Filler wire (ER 347 & ER 309)	As required	As required
4	Arc Welding Electrode (E 7018)	As required	As required
5	Electrode Baking Oven (Temperature range 0 - 300 Deg. Centigrade)	1 No.	1 No.
6	Portable Oven for Electrodes	Minimum 2 No.	Minimum 1 No.
7	Grouting Cement Conbextra GP 2 for Anchor Bolts, Foundation Ring of CW Pumps	As required	As required
8	LPI Kits	As required	As required
9	High Precision Spirit Level	1 No.	2 No.
10	Torque Wrench suitable for High capacity Pump Assembly	As required	As required
11	Vernier Calipers (0 - 300mm)	Minimum 1 No.	common
12	Inside/outside Micrometers ( 0 - 500mm)	Minimum 1 Set	common
13	Dial gauges (0 - 10 mm)	Minimum 4 Nos.	Minimum 4 Nos.
14	Measuring Tapes (2.00M, 5.00M, 10.00M, 30.00M)	Minimum 1 No. each	common
15	Surface plate	1 No.	1 No.
16	Trailer with prime mover (25 MT capacity minimum)	1 No.	common
17	Crane for loading and unloading	1 No.	common
18	Halogen Lamps for Motor dry out (if required)	As required	common
19	Chain Pulley Blocks 15 MT Capacity	NA	2 No.
20	Chain Pulley Blocks 5 MT Capacity	NA	2 No.
21	Chain Pulley Blocks 3 MT Capacity	NA	2 No.
22	Allen keys : M8 & M12	As required	As required
23	Ring spanners / D-spanners : M10, M12, M20, M24, M30, M36	As required	As required
24	Arranging of Radiography Source and Radiography of weld joints (up to Dia. 60.3 x 5.54mm)	Minimum 4 Joints / CW Pump	As required

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

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

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Note: The list is only an indicative one, and if any other T&Ps, MME, consumables etc. are required for satisfaction Erection and Commissioning of Vertical Turbine Pump with Motor sets, same are to be arranged by the Bidder/Contractor at his cost.

B: **MMD:**

AS PER SITE REQUIREMENT TO FULFILL FIELD QUALITY PLAN CHECKS.

NOTE:

- 1) THE ABOVE LIST IS NOT INTENDED TO BE EXHAUSTIVE. CONTRACTOR SHALL ARRANGE ALL THE T&P REQUIRED THOUGH NOT LISTED SPECIICALLY EXCEPTING THOSE PROVIDED BY BHEL.
- 2) ALL THE SMALL TOOLS & PLANTS ETC. HAVE TO BE PROVIDED BY THE CONTRACTOR.

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter – V: T&Ps and MMEs to be deployed by BHEL on sharing basis**

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<b>SI No.</b>	<b>DESCRIPTION</b>	<b>QUANTITY</b>	
1	30MT EOT crane in CW Pump House (on sharing basis) and Crane operator to be arranged by Contractor	1 No.	As required
2	BHEL will provide suitable crane for Loading and unloading of individual component if the weight is more than 14.00MT	1 No.	NA
3	Meggaring Instrument for measuring of IR & PI value of Electrical Motor's winding	1 No.	As required

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VI: Time Schedule

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### **6. TIME SCHEDULE & MOBILIZATION**

#### **6.1 INITIAL MOBILIZATION**

The works under this technical specification and scope of works (Both Packages- CW Pump & Vertical Turbine Pump) are to be undertaken immediately. The requisite manpower/ materials/MME/Transport Vehicle /consumables/ T&P etc. will have to be mobilized in all respects within one week time from the date of issue of letter of intent to commence the work.

#### **6.2 PACKAGE.A-(E&C OF CW PUMPS)**

**Time schedule –6 months**

- 6.2.1 Preassembly, Erection of the vertical type CW Pump with Motor (5 sets) including alignment, testing, trial run and commissioning shall be completed in all respect within a **time period of six (6) Months**. Contractor / bidder has to comply with the time schedule discussed with BHEL. However two months may be given as a grace period on considering the site conditions & other unfavorable circumstances.

#### **6.3 PACKAGE.B (E&C of Vertical Turbine Pump)**

**Time schedule –4 months**

- 6.3.1 Preassembly, Erection of the Vertical Turbine Pump with Motor (24 sets) including alignment, testing, trial run and commissioning shall be completed in all respect within a time period of **four (4) Month**. Contractor / bidder has to comply with the time schedule discussed with BHEL. **However one (1.0) months may be given as a grace period on considering the site conditions & other unfavorable circumstances.**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter – VI: Time Schedule

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- 6.4 The entire scope of work as detailed in the scope of services and as per the applicable drawings shall be completed within agreed time frame from the date of start of work actual work. The period from start of preparatory work till actual start of work shall not be reckoned for start of contract period.
- 6.5 During the total period of contract, the contractor/bidder has to carry out the activities in a phased manner as required by Site Engineer / site in charge and as per the programme of events / targets fixed by Site Engineer / site in charge to meet the Project schedule.
- 6.6 The work under this scope of contract is deemed to be completed in all respects when these are commissioned and accepted by Customer & BHEL as per drawings requirement.
- 6.7 During the tenure of contract, if Site Engineer / site in charge is not satisfied with the progress of works, Site Engineer / site in charge have the right to withdraw any portion of work.
- 6.8 No ORC shall be paid and also no PVC shall be paid.
- 6.9 **The PACKAGE.A-(E&C OF CW PUMPS) & PACKAGE.B (E&C of Vertical Turbine Pump) shall be operated as separate contracts with separate contract value & Contract duration for the purpose of time extension etc.**
- 6.10

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VII: Terms of Payment

### **7.1 PACKAGE.A-(E&C OF CW PUMPS)**

**7.1.1** The progressive payment for erection, alignment, testing, trial run and commissioning on accepted price of contract value will be released as per the break up given hereinafter : for Cooling Water Pumps & Motors

Activities	Lump sum rate	Payment break up
A) Transportation of materials to work site, preparation of foundation, erection, placement in position, leveling etc. grouting completion.	<b>Quoted Lump sum rate</b>	45%
B) Alignment of pump with motor	<b>Quoted Lump sum rate</b>	30%
C) Testing, trial run and commissioning.	<b>Quoted Lump sum rate</b>	25%

90 % payment will be released on billing and balance 10% be paid after satisfactory completion of work on certification of concern engineer.

### **7.2. PACKAGE.B (E&C of Vertical Turbine Pump)**

**7.2.1** The progressive payment for erection, alignment, testing, trial run and commissioning on accepted price of contract value will be released as per the break up given hereinafter : for Vertical Turbine Pumps & Motors

Activities	Lump sum rate	Payment break up of Item rate
A) Transportation of materials to work site, preparation of foundation, erection, placement in position, grouting completion.	<b>Quoted Lump sum rate</b>	45%
B) Alignment of pump with motor	<b>Quoted Lump sum rate</b>	30%
C) Testing, trial run and commissioning.	<b>Quoted Lump sum rate</b>	25%

90 % payment will be released on billing and balance 10% be paid after satisfactory completion of work on certification of concern engineer.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-VII: Terms of Payment

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7.3 Rate to be Quoted: **You are requested to quote your lowest/competitive unit rate as mentioned in schedule 'B' in a sealed envelope.**

7.4 Accommodation and transport for your staff and transport of material at site during the course of execution of above work shall have to be arranged by you within your quoted price

**NOTES:**

1. Besides product groups indicated herein, there is likelihood of addition of new product groups by BHEL' s unit for release of some items, integral to this work. Tenderers' quoted unit rates shall be applicable for such product groups also.
2. BHEL' s decision with regard to classification of a particular product group for applicable rate category shall be final & binding on the Contractor.
3. Security deposit for the total contract value (combined package value) is to be submitted by contractor after award of contract.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter –VIII : Taxes & Duties

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### **88.0 TAXES, DUTIES, LEVIES (Consolidated Rev 03 dated 09/04/2013)**

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

##### **8.1.1**

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

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

##### **8.1.2 Service Tax & Cess on Service Tax**

Contractor's price/rates shall be exclusive of Service Tax and Cess on Services. In case, it becomes mandatory for the contractor under provisions of relevant act/law to collect the Service Tax & Cess from BHEL and pay the same to the concerned tax authorities, such applicable amount will be paid by BHEL at the prevailing Service Tax Rate (presently 12.36 %) on the admitted bill value.

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

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

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

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

##### **8.1.3 VAT (Sales Tax /WCT)**

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

In any case the Contractor shall register himself with the respective Sales Tax authorities of the state and submit proof of such registration to BHEL along with the first RA bill. Contractor will submit all the details of VAT/CST paid for the contract in the prescribed format of the respective state VAT laws. Also, the

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter –VIII : Taxes & Duties

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contractor will issue the tax Invoices to BHEL as per the Tax laws of respective state on monthly basis. Contractor shall also be required to furnish to BHEL necessary proof of VAT remittance on monthly basis.

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

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

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

### **8.2 —‘Enabling Works’**

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

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

### **8.3 New Taxes/Levies**

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

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

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter –VIII : Taxes & Duties

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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.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Annexure I-: Drawings

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### **DRAWINGS:**

9.0 THE FOLLOWING DRAWINGS ARE UPLOADED SEPERATLY AS DOCUMENT TITLE- 'DRAWINGS'.

1) 'GENERAL ARRANGEMENT & FOUNDATION DETAILS OF CW PUMP + MOTOR'

2) CROSS SECTIONAL DRAWINGS OF BLOW DOWN PUMP.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Annexure-II

### ESTIMATED WEIGHT FOR VARIOUS SYSTEMS IN SCOPE OF WORK

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#### **1.0 CW PUMPS**

The Weight of the vertical type Cooling Water Pump (approximate weight is 28 MT each) and Motor (capacity is 2200kW / approximate weight is 25MT each). Total estimated weight of 5 sets is 265.00 MT.

#### **2.0 VERTICAL TURBINE PUMPS**

**Refer the Annexure –A ‘Details of Vertical Turbine Pump with motor (24 Set)’ attached with Drawings.**

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-I : GENERAL REQUIREMENTS

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### 1.0 GENERAL REQUIREMENTS – COMMON TO ALL WORK

#### 11.1

The intent of specification is to provide services according to the most modern and proven techniques and codes. The omission of specific reference to any method, equipment or material necessary for proper and efficient execution of this work shall not relieve the Contractor of the responsibility of providing such facilities to complete the work without any extra compensation.

#### 11.2

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

#### 11.3

The work shall be executed under the usual conditions affecting major power plant construction and in conjunction with numerous other operations at site. The Contractor and his personnel shall cooperate with personnel of BHEL, BHEL'S Customer, Customer's consultants and other Contractors, coordinating his work with others and proceed in a manner that shall not delay or hinder the progress of work of the project as a whole.

#### 11.4

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

#### 11.5

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

#### 11.6

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

#### 11.7

The work shall conform to dimensions and tolerances specified in the various drawings / documents that will be provided during various stages of erection. If any portion of work is found to be defective in workmanship, not conforming to drawings or other stipulations due to Contractor's fault, the Contractor shall dismantle and re-do the work duly replacing the defective materials at his cost, failing which the work will be got done by BHEL and recoveries will be

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-I : GENERAL REQUIREMENTS

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effected from the Contractor's bills towards expenditure incurred including cost of materials and departmental overheads of BHEL.

11.8

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

11.9

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

11.10

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

11.11

BHEL reserves right to recover from the Contractor any loss which arises out of undue delay / discrepancy / shortage / damage or any other causes due to Contractor's lapse during any stage of work. Any loss to BHEL due to Contractor's lapse shall have to be made good by the Contractor.

11.12

All cranes, transport equipment, handling equipment, tools, tackles, fixtures, equipment, manpower, supervisors/engineers, consumables etc, except otherwise specified as BHEL scope of free issue, required for this scope of work shall be provided by the Contractor. All expenditure including taxes and incidentals in this connection will have to be borne by Contractor unless otherwise specified in the relevant clauses. The Contractor's quoted rates should be inclusive of all such contingencies.

11.13

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

11.14

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

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-I : GENERAL REQUIREMENTS

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### 11.15

The Contractor shall make all fixtures, temporary supports, steel structures required for jigs & fixtures, anchors for load and guide pulleys required for the work. Contractor shall arrange necessary steel for such usage. Only the steel for making temporary structure (cat head) for drum lifting will be provided by BHEL in random sizes materials available at site.

### 11.16

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

### 11.17

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

### 11.18

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

### 11.19

The details of equipments to be erected under this contract is generally as per the schedule given in relevant clauses. These details are approximate and meant only to give a general idea to the tenderer about the magnitude of the work involved. Actual quantum and type of equipments will be based on the relevant erection documents which will be furnished to the Contractor in due course of erection and the weight and quantity as per the relevant engineering documents will only be admissible for the billing purpose.

### 11.20

Contractor shall lay/install the field-routed/small-bore pipelines to suit site condition/ requirement. Before laying/installing such pipelines, the contractor shall prepare necessary sketch for routing these pipe lines and get the same approved by BHEL. Contractor must take care of the location/layout of other systems and equipment before preparing such sketch to avoid interference. There is a possibility of minor change in routing such pipelines even after completion of erection; contractor shall carry out the same without any extra cost to BHEL.

### 11.21

Welding of necessary instrumentation to be provided for piping are covered within the scope of this specification. The installation of all the above items will be Contractor's responsibility even if:

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-I : GENERAL REQUIREMENTS

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

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

### 11.23

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

### 11.24

The work shall be carried out strictly in accordance to the "Field Quality Plan" approved by BHEL/client. Contractor, jointly with BHEL, shall prepare all necessary records of measurements/readings/ protocols etc.

### 11.25

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

### 11.26

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

### 11.27 Handling of materials from new storage yard.

**Customer has allotted new storage area (outside plant boundary) about 1 km from main gate and the transportation distance involved upto erection site will be approx. 2.0 km. Some of the heavy consignments related to this pkg shall be unloaded in this yard also. Contractor has to arrange required capacity crane/trailer and all associated arrangement for loading/transportation of these material upto erection site. No additional claims shall be entertained for this work.**

### 11.28

Contractor shall regulate flow of material to and from site in such a manner and sequence that material accumulation at site does not lead to congestion at site. in case it is necessary to shift and restack the materials kept at work areas / site to enable other agencies to carry out their

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-I : GENERAL REQUIREMENTS

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work or further any other reason, it shall be done by the Contractor most expeditiously. No claim for extra payment for such work will be entertained.

### 11.29

The Contractor shall have total responsibility for all equipment and materials in his custody at Contractor's stores, loose, semi-assembled, assembled or erected by him at site. He shall effectively protect the finished works from action of weather and from damages or defacement and shall also cover the finished parts immediately on completion of work as per BHEL engineer's instructions. The machine surfaces/finished surfaces should be greased and covered.

### 11.30

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

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

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter-II WELDING, RADIOGRAPHY, NDT, PWHT**

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**13.1.0 WELDING, RADIOGRAPHY AND NDE**

- A) Installation of equipment involves good quality welding, NDE checks, etc contractor's personnel engaged should have adequate knowledge on the above works.
- B) The method of welding (viz.) will be arc welding and details will be indicated in the drawing / documents. BHEL engineer will have the option of changing the method of welding as per site requirement. Welding of weld joints, including root, will have to be done with specified welding electrodes. The root welding has to be back gouged from inside the pipe by grinding and welded. That is welding has to be done both from inside as well as from outside the pipes as per the relevant engineering document.
- C) All the welders (structural and piping) shall be tested and approved by BHEL engineer before they are actually engaged on work though they may possess the IBR/other certificate. BHEL reserves the right to reject any welder without assigning any reason.
- D) Welding electrodes have to be stored in enclosures having temperature and humidity control arrangement. This enclosure shall meet BHEL specifications.
- E) Welding electrodes, prior to their use, call for baking for specified period and will have to be held at specified temperature for specified period. Also, during execution, the welding electrodes have to be carried in portable ovens.
- F) Unsatisfactory and continuous poor performance may result in discontinuation of concerned welder.
- G) The external welded surface shall be cleaned of slag, rust etc; ground finished to obtain smooth surface free of excess undulations, wrinkles etc and painted over a band width suitably covering the entire Heat Affected Zone for each site weld joint. Refer clause 4.8 hereinafter for further details.
- H) The contractor shall maintain welding records in the form as prescribed by BHEL containing all necessary details, and submit the same to the BHEL engineer as required. Interpretation of BHEL engineer regarding acceptability of the welds shall be final.
- I) NDE (radiography & LPI/DPT) shall be done as per approved field quality plan/ other BHEL documents.

**TECHNICAL CONDITIONS OF CONTRACT (TCC)**  
**Chapter-II WELDING, RADIOGRAPHY, NDT, PWHT**

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- J) 100% radiography may have to be taken in respect of certain in-situ weld joints.
- K) Contractor shall make complete arrangement for radiography test of welds connected with this work. It may be noted that invariably the radiography work will be carried out only after the close of other site activities.
- L) Radiography inspection of welds shall be performed in accordance with requirements and recommendation of BHEL engineer. The quantum of radiographic inspection shall be as per provision of BHEL's erection documents/ FQP. They may, however be increased depending upon the performance of the individual welder at the discretion of BHEL engineer.
- M) All radiography films and records of weld joints shall be preserved properly and be handed over to BHEL. These shall become the property of BHEL.
- N) **For the radiography test of weld joints cleared and accepted by BHEL/client, payment @ Rs.10 per centimeter of accepted film length (of standard width applicable for these joints).** No payment shall be made for film lengths not accepted by BHEL and reasons for which are attributable to the contractor such as retakes on account of bad shot, poor joint quality etc. Please refer section-12 special conditions of contract (Terms of Payment) for release of payment.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-III PAINTING

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Final painting &/ or touch up painting as required to be done as per applicable standards or work shall be executed as per the instructions of BHEL.  
Supply of paints shall be in BHEL's scope.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-IV: TESTING, PRE-COMMISSIONING, COMMISSIONING

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### 15.1.0

#### **TESTING, PRE-COMMISSIONING AND ASSISTANCE FOR COMMISSIONING.**

#### 15.1.1

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

#### 15.1.2

In case any defect is noticed during tests, trial runs such as loose components, undue noise or vibration, strain on connected equipment etc, the contractor shall immediately attend to these defects and take necessary corrective measures. If any readjustment and realignment are necessary, the same shall be done as per BHEL engineer's instructions. No Claims, for these works shall be attributable to BHEL.

#### 15.1.3

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

#### 15.1.4

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

#### 15.1.5

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

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-V: PRESERVATION

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### 16.1.0 PRESERVATION & PROTECTION OF COMPONENTS

#### 16.1.1

The contractor shall have total responsibility for all equipments and materials in his custody at his stores, loose, semi-assembled, assembled or erected by him at site. He shall effectively protect the finished works from action of weather and from damages or defacement and shall also cover the finished parts immediately on completion of work as per BHEL engineer's instructions. The machine surfaces/ finished surfaces should be greased and covered.

#### 16.1.2

At all stages of work, equipments/materials in the custody of contractor, including those erected, will have to be preserved as per the instructions of BHEL.

#### 16.1.3

The contractor shall make suitable security arrangements including employment of security personnel and ensure protection of all materials/equipment in their custody and installed equipments from theft/fire/pilferage and any other damages and losses.

#### 16.1.4

Contractor shall collect all scrap materials periodically from various area of work site and pre- assembly area, deposit the same at the place earmarked at site or shift the same to a place earmarked in BHEL / client's stores. In case of failure of contractor in compliance of this requirement, BHEL will make suitable arrangement at contractor's risk and cost.

#### 16.1.5

The entire surplus, damaged, scrap, unused materials, package materials / boxes / containers, special transporting frames, gunny bags, etc, shall be returned to BHEL stores by the contractor with proper records.

#### 16.1.6

The contractor shall not waste any materials issued to him. In case it is observed at any stage that the wastage/excess utilization of materials is not within the permissible limits, recovery for the excess quantity used or wasted will be affected with departmental charges from the contractor. Decision of BHEL on this will be final and binding on the contractor.

# TECHNICAL CONDITIONS OF CONTRACT (TCC)

## Chapter-V: PRESERVATION

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### 16.1.7

For any class of work for which no specifications have been laid down in these specifications, work shall be executed as per the instructions of BHEL.